Bulletin on NARCOTICS

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BULLETIN ON NARCOTICS

The control of narcotic drugs is a field in which, during the first half of the twentieth century, international activity has been highly productive. From the first meeting in Shanghai in 1909 to the Paris Protocol of 1948, several international instruments were concluded and, indeed, the United Nations, in succeeding the League of Nations, inherited the duty of enforcing a highly complex international legislation.

The problem of the struggle against the abuse of narcotic drugs is of interest to many professions and to practically all countries. It is for this reason that the Commission on Narcotic Drugs and the Economic and Social Council decided that it would be desirable to disseminate authoritative information on this subject in a bulletin published by the Secretariat of the United Nations. The General Assembly upheld this decision. This bulletin will therefore attempt to give the most recent news on the results obtained in the control of narcotic drugs and the struggle against addiction, by Governments, by the United Nations and by the organizations established under the Conventions. It will contain technical and scientific articles on narcotic drugs and articles on the legislation and administration in various countries as well as bibliographical material. It will also give accounts of the preparatory work undertaken with a view to establishing a single Convention destined to replace the existing eight international instruments on narcotic drugs, and to strengthen and to simplify the international control machinery.

Guided by these principles and in accordance with the recommendation of the Commission on Narcotic Drugs, approved by the Economic and Social Council, the Secretariat presents the first number of the Bulletin on Narcotics to be published four times a year.

The Bulletin on Narcotics is prepared in four principal sections for convenient grouping of its editorial content.

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Statement

BY THE SECRETARY-GENERAL

The problem of narcotic drugs is in no sense a problem confined to one continent or civilization.

In themselves narcotic drugs are neither dangerous nor harmful. Indispensable to modern medicine, they are used the world over to alleviate pain and restore health. Thus used they bring a great benefit to mankind. But abused they cause havoc and misery. The social dangers of drug addiction are well known.

This dual nature of narcotic drugs has made it necessary to submit them to the most stringent international control. In the general interest of the world community some seventy Governments Parties to international treaties on narcotics, renouncing in this field certain prerogatives of national sovereignty, accepted the system of a universal international control vested with powers of automatic sanctions (embargo on trade in narcotics). This control, functioning now under the auspices of the United Nations and expanding rapidly to the field of newly discovered synthetic drugs, ensures the limitation of their manufacture, trade and consumption to legitimate needs only.

This international control and the treaties on which it is based have, however, a wider significance than the limited field of narcotic drugs. If the principles on which these treaties and this control rest could be applied with equal success to wider fields of human endeavour, to other kinds of dangerous weapons, peace would be within our reach.

International Control of Narcotic Drugs

By Henri LAUGIER
Assistant Secretary-General in Charge of Social Affairs

When the first General Assembly of the United Nations in London took the decisions necessary to ensure the continuity of the international control of narcotic drugs, formerly exercised under the auspices of the League of Nations, responsibility for carrying out these decisions was entrusted to the Department of Social Affairs.

The work done by the League of Nations in this field was not unknown to me. But it was not until I had familiarized myself with its details as head of the department in which the work is now done, that I was able to appreciate its full scope and extent.

Six international conventions and agreements concluded between 1912 and 1936, supplemented by two international protocols concluded under the auspices of the United Nations in 1946 and 1948 respectively, form its framework and legal foundation.

Seventy-one sovereign countries being parties to one or more of these treaties, their application is universal, like the problem which is the subject of this international legislation.

In order to achieve this universality, one of these treaties—the 1931 Convention—introduced a bold innovation in the technique of international legislation, by stipulating that the principal measures of control instituted by the Convention should become applicable to *all* countries and territories throughout the world as soon as the Convention entered into force in virtue of its ratification by a limited number of States (twenty-five). Designed to be applied by all countries and territories throughout the world regardless of their economic, social and administrative structure, these treaties have created an ever-growing tendency towards the unification of national laws and administrative regulations concerning narcotic drugs in all countries and territories.

What is the practical and tangible result of all these efforts and of this international legislation?

Every year an international supervisory body assesses the requirements in narcotic drugs for medical and scientific purposes of each country and territory throughout the world. The quantity of raw material required for the manufacture of these drugs is also known and its importation can be adjusted to the requirements for authorized manufacture. By this means it is possible to limit world manufacture of narcotics effectively to legitimate world demand. All channels of distribution national and international, are subject to control. All commercial transactions, national and international, and all consumption are recorded and statistics are transmitted periodically to an international control board. The functioning of the system is constantly supervised and co-ordinated by international organs.

As a result, a particular branch of industry now

operates according to an internationally conceived and enforced plan. One fact is worth emphasis: it was social and humanitarian reasons, and not economic or financial ones, that led to the establishment of these international regulations. In the general interest of the community of States, Governments freely consented to limit their own freedom of action and to transfer certain powers to international organs, also conferring upon them the power to apply sanctions against an offending State. They enacted international legislation whereby regulations based on a series of precise and compulsory international undertakings, once accepted by a limited number of States, should extend to all the countries and territories of the world. Lastly, an international line of demarcation was drawn between legitimate trade and illicit traffic in narcotic drugs, thus making the suppression of illicit manufacture and trade possible and compulsory.

Since the taking over of this work by the United Nations, Governments and the international organs responsible for the administration and control of narcotic drugs have had to face new tasks of ever-increasing complexity. The discoveries of modern chemistry and pharmacology in the field of synthetic narcotics have necessitated a speedy adaptation of existing control to constantly changing conditions. The Paris Protocol, concluded in November 1948, afforded a provisional solution of this problem.

Nevertheless, the problem of limiting the production of the raw materials used in the manufacture of narcotics to the world's medical and scientific requirements and the problem of regulating their distribution, constantly postponed for the last forty years, are still awaiting solution.

The Commission on Narcotic Drugs and the Economic and Social Council, in entrusting the Secretariat with the preparatory work in this field, gave it another complex and difficult task, that of elaborating a single international convention to replace the eight existing international instruments concerning narcotic drugs. The purpose of this new Code will be finally to regulate, both on the national and international level, the problems arising from the need to use narcotic drugs in modern therapeutics and at the same time to prevent their abuse. It is also intended to consolidate the progress so far achieved, to simplify the existing system of control, and at the same time to reinforce and create a system of universally applicable obligations, both sufficiently precise and sufficiently flexible to be immediately adaptable to the changing conditions of the modern world. It will contain regulations specifying the essential co-operation and functions of the World Health Organization in the definition of substances subject to control.

The opinion is sometimes heard that the results obtained in the limited field of the international control of narcotics have an influence which transcends their own sphere. Anyone who has followed over a period of time the evolution of the ideas and plans for the creation and extension of this control and has studied the development of the international administration which has arisen from them, cannot fail to endorse that opinion.

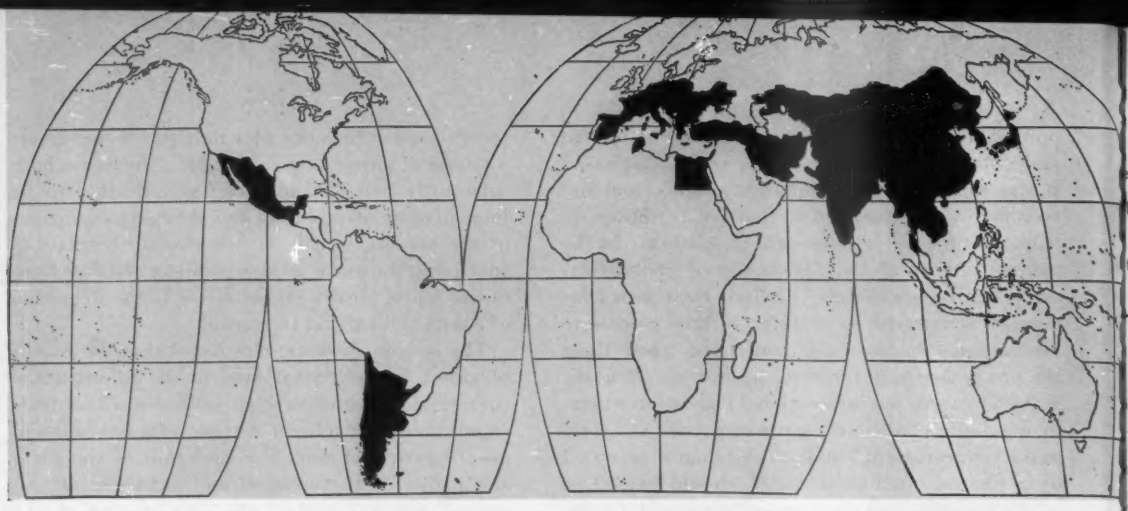
The work of creating and setting in motion this machinery of international control, the methods employed and the results obtained, are in the nature of a laboratory experiment, by means of which social research, pursued with patience and imagination and following sound and careful methods, has led to results which may have an unforeseen and far-reaching influence upon society, far transcending the sphere in which they were conceived and the subject with which they deal. As Senator de Brouckère, President of the 1931 Conference,[1] said in summing up its work:

> "This is an immense piece of work . . . Nothing of the kind has ever been attempted before . . . If a similar system could be established for far more dangerous drugs and far more murderous weapons, humanity would have made a considerable advance."

In 1949 these words are of far greater urgency than in 1931.

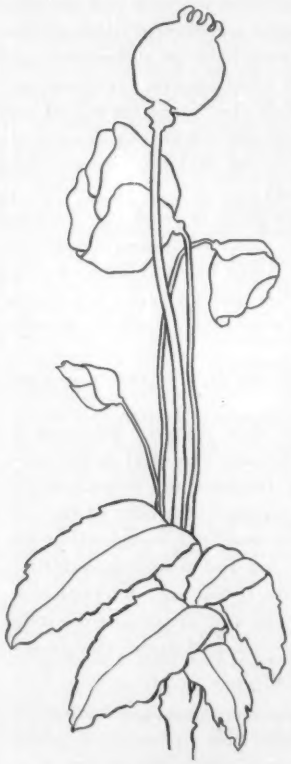
The message which this Bulletin proposes to send out starts from a limited field. But in the midst of the preoccupations, tensions and tumult of our age, it will serve as a constant reminder of the fact that an attempt at international co-operation has been made, has succeeded and reveals possibilities within the reach of men, if they are determined to harmonize their interests and organize their relations within the framework and under the protection of international law.

[1]Conference for Limiting the Manufacture of Narcotic Drugs, Geneva, 27 May-13 July 1931.



OPIUM PRODUCTION

THROUGHOUT THE WORLD



Papaver somniferum L.

The opium poppy can be grown in most of the habitable parts of the world except the northernmost, up to at least latitude 56°. Where this poppy can be grown, opium can be produced, though not always profitably or legally. In a number of countries the opium poppy is grown for its seeds, and not for opium at all. It is then referred to as "the garden poppy," instead of "the opium poppy", but it is just the same plant, scientifically known as *Papaver somniferum* Linnaeus. The seeds are a valuable oil-containing food, and are also pressed for the oil, which may be used as a table oil for other purposes, such as artists' paints. The pressed-out poppyseed-cake is used as feed for cattle.[1]

There are many species of poppies, but only *Papaver somniferum* is known to elaborate morphine, and therefore it is the only poppy known to produce a true opium. It is also the only poppy grown commercially for edible seeds. Sometimes, like other poppies, it is grown merely for its flowers. It has numerous floral varieties, single and double, with petals spotted at the base with either violet or white, and colors ranging from pure white through pink, lavender and red, to very dark violet. The familiar Shirley Poppies, and their progenitor the common red poppy (*Papaver rhoeas*), and the showy Oriental Poppies (*Papaver orientale and Papaver bracteatum*) produce no morphine and should not be mistaken for opium poppies. In this article, when there is reference simply to "the poppy" or "poppies", *Papaver somniferum* is meant.

Papaver somniferum is grown primarily for its seeds, both commercially and in the home vegetable gardens, in a great belt across central Europe, taking in the Netherlands, Belgium, northern France, southern Germany, Switzerland, Austria, Hungary, northern Yugoslavia, Czechoslovakia, Poland, Romania and the Ukraine. The southern European countries very seldom grow the poppy for its seeds because as an oil producer it cannot

"poppy belt," shown in black on the p on the opposite page, spreads across great Eurasian land-mass in most of temperate and sub-tropical areas. As indicated, the *Papaver somniferum* also is cultivated in parts of northern Africa and in the western hemisphere—although on a much smaller scale, as all cultivation (except for some experiments in Argentina) is illicit. A detailed breakdown of opium production by countries may be found on the map on pages 30 and 31.

compete with the olive. In the great poppy belt of Europe there is almost never any production of opium, but since the 1930's, a number of these countries have begun to utilize, to some extent, the dried poppy plant material or capsule chaff left over from threshing out the seeds, for the direct extraction of morphine and the manufacture of opiates. The United States, Australia, Chile, Argentina and Italy may also be mentioned as having experimented with the utilization of poppy chaff.

Occasionally, e.g., in France[2] or England,[3] a limited cultivation is primarily for the capsules, which are cut green and dried for pharmaceutical use. They are used in official medicine in some countries and in some for home medicines such as sleeping potions or cough syrups.

But the greatest cultivation of the poppy, chiefly in Asia, is for opium. A few days after the flower petals fall the cultivator scratches the outside of the green capsule with a knife. A white, milky juice flows out. Usually it is left to dry on the capsule for several hours, then collected. It gradually turns brown on exposure to the air and coagulates with standing and drying. This coagulated juice of the poppy is opium.

The opium poppy is an annual plant. Mainly, the seed is sown in the fall. It can also be sown in spring, either by choice or to replace a fall sowing which has failed. The harvest takes place between May and August.

The original home of the opium poppy is probably the Mediterranean region, and probably its cultivation first began near the eastern end of the Mediterranean. The culture for seed seems to have come first, perhaps coupled with a knowledge of the soothing and sleep-producing powers of the capsules, when made into "poppy tea." The knowledge of the concentrated drug, opium, is known to be more than 2,000 years old in eastern Mediterranean lands. The culture for seed has moved chiefly northward and westward, and is very ancient in Europe. The culture for opium, and with it the common use of opium as a drug of addiction, reversing most world-trends has spread from west to east. Originally, opium as a drug of addiction was eaten, or drunk as an infusion. The smoking of opium, which became such a terrible vice among the Chinese, is comparatively recent, only some hundreds of years old. Opium culture is believed to have reached Japan about 500 years ago.[4] Only in recent years has it crossed the Pacific and become established to a certain extent, though wholly illicit and under constant attack, in the mountains of western Mexico.

Here it may be mentioned that opium is often, though by no means always, produced in mountainous regions. Illicit production, of course, is likely to be located in hidden valleys and places of difficult access. But even licit production is more likely to be in out-of-the-way places. Opium is a good cash crop in many lands, it has a fairly high value in proportion to its bulk and weight, and no important difficulties of transport or storage. Where good roads offer easy access to large markets, some more bulky crop may be as profitable to the farmer as opium, even if there are no important governmental restrictions. In mountainous, backward areas, where roads are few or non-existent, opium may be one of the very few crops that can be produced profitably for sale in the outside market.

SURVEY OF THE COUNTRIES

AFRICA

Tunis. There has been a little illicit production in Tunis, signalized by small seizures of opium still in a soft condition. In 1947 a total of 5.7 kg. of opium was seized, but probably less than half of this represented local production. The opium is intended for eating, not smoking. That locally produced is said to contain only about three per

(Continued on next page)

cent of morphine. This probably indicates considerable adulteration, as well as a high moisture content. It is produced in the region around Bizerte and Porto-Farina. In recent years the poppy plants have sometimes been discovered and destroyed. They are grown by the natives in gardens and orchards.[5]

YEAR	POPPY PLANTS DESTROYED	PLACE
1944	4,229	Region of Porto--Farina
1945	7,308	Porto-Farina, Rafraf
1947	22,216	Bizerte district

Egypt is one of the ancient homes of opium cultivation, and Egyptian opium was particularly famous in the Middle Ages. Poppy cultivation is now completely prohibited, but there is a little illicit cultivation and production of opium. Recently Egypt has been one of the chief victim countries of the narcotics traffic. Huge quantities of opium are smuggled in, as well as hashish and manufactured drugs. The low mark for seizures of smuggled opium was in 1935 — 247 kilogrammes, least quantity in the last twenty years. By 1937 the seizures amounted to more than a ton, and since then they have greatly increased until, for 1948, they amounted to more than four and one-half tons! The quantity smuggled without detection is of course much greater. The enormous influx of narcotics may well be termed "the last plague of Egypt."[6] Some success has been attained in repressing illicit domestic production. In 1940 air patrols were instituted to look for poppy fields. This quickly cut domestic production, as many farmers pulled up their illicit plants or discontinued planting when they realized discovery was likely. Judging from the areas of poppies destroyed, illicit production in Egypt is not large. About 10 kilogrammes of opium can usually be produced from one hectare. Following are figures from the Annual Reports* of seizures of opium (nearly all smuggled) and illicit Egyptian cultivation destroyed (hectares by conversion) :[7]

YEAR	KG. OPIUM SEIZED	HECTARES OF ILLICIT CULTIVATION DESTROYED
1937	1,006	419
1938	1,037	100
1939	1,110	239
1940	1,650	340
1941	1,153	42
1942	1,271	15
1943	686	11
1944	1,171	23
1945	2,006	8
1946	2,439	0.14
1947	3,655	15
1948	4,606	45

EUROPE

In Europe, aside from Macedonia, opium production has been negligible; but experimental production has been tried at one time or another in most European countries. So far as known, there has been no illicit production of opium in the great "poppy belt" of Europe. A few countries deserve present mention.

Spain. In 1944 and 1945 there was some experimental cultivation, presumably for trial of opium production, in the provinces of Valencia and Valladolid.[8] There has been no Annual Report* from Spain since then.

Italy. In 1935 experimental production on 12.35 hectares resulted in 41.15 kg. of opium. In 1936 on 11.65 hectares 3.9 kg. of opium was produced.[9] Italy then ceased collaboration with the League of Nations and no further Annual Report is available until 1947. It seems there has been some experimental production in Sardinia.[10]

Germany. The Annual Report for the United States Zone of Germany for 1946 gave the text of a notice which appeared in "*Die Pharmazie*," vol. 1, no. 3, August 1946, p. 127, inviting farmers growing poppies in the Soviet zone to attempt the collection of opium, under control.[11] The outcome of the experiment has not been officially reported. Reference can also be made to two German articles on opium production in Germany.[12]

Hungary has not been a producer, even experimentally, in recent years. Formerly some opium was produced by a drug company which used it pharmaceutically, but since the success of the Kabay process for obtaining morphine from poppy plant material (1934) no opium has been produced in Hungary. In 1936 the cultivation of the poppy for opium on seven hectares of land was author-

* "Annual Report" refers to the Annual Reports of Governments under the Convention for Limiting the Manufacture and Regulating the Distribution of Narcotic Drugs of 13 July 1931.

ized; but the crop failed. This seems to have been the last attempt.[13]

Yugoslavia is one of the major opium-producing and exporting countries. Production is only in part of Vardar province, the south-easternmost part of the country, adjacent to Bulgaria and Greece.

MAP NO. 218.1 AUGUST 1949 UNITED NATIONS UN PRESENTATION 1358.1

For the four years just before the war, production averaged some 63 tons annually; since the war it has been less than half as much (1946 and 1947). In 1946 the crop was poor; in 1947 the area cultivated for opium was reduced and the yield was also low. No figures are available for the years 1939 to 1945. In fact, during the period that Yugoslavia was overrun by the Germans, Vardar province was attached to Bulgaria. Yugoslavia uses some opium for domestic manufacture; the rest is exported to other manufacturing countries. The domestic utilization for manufacture amounted to 9,946 kg. in 1947.[14] It should be mentioned that production figures are in terms of opium of 60 to 75 per cent consistence (40 to 25 per cent moisture), while the exported opium is dryer, with a consistence of 80 to 90 per cent. Thus 100 kg. of opium produced may make only about 75 kg. of standardized export opium, but the apparent loss is merely evaporation of water. The Yugoslav export opium is of high quality, having a morphine content of around 15 per cent. Following are pre-war and post-war figures for area, production and export:[15, 16]

YEAR	AREA (HECTARES)	PRODUCTION (KILOGRAMMES)	EXPORT (KILOGRAMMES)
1935	7,000	75,000	36,703
1936	7,826	63,220	32,281
1937	7,430	62,200	48,611
1938	7,360	53,200	29,915
1946	7,186	30,000	24,028
1947	4,680	23,432	19,344

Bulgaria is a small producer but not entirely negligible in the export market. Production is along the Maritza and the Struma rivers, in the southern and south-western part of the country. The following figures give some data on pre-war and post-war production:[17]

YEAR	AREA (HECTARES)	PRODUCTION (KILOGRAMMES)	EXPORT (KILOGRAMMES)
1935	700	7,000	3,113
1936	890	5,700	4,964
1937	772	7,712	6,083
1938		4,593	1,460
1939	723	7,217	2,723
1947	300	2,731	11,000

Greece sometimes produces a little opium in Greek Macedonia.* The post-war production has been merely for the medical needs of the country. The maximum production in Greece since 1926 was 3,428 kg. in 1928. There are no figures for the war period, but the maximum known production in recent years was a little under 296 kg., in 1946.[18, 31a]

YEAR	AREA (HECTARES)	PRODUCTION (KILOGRAMMES)
1935	0	no production
1936	0	" "
1937	0	" "
1938	4½	17
1939		15
1946	56½	296
1947	120	132

*Macedonia, the beginning, at the western end, of the real "opium belt," is possibly within, or certainly very near to the area of opium production in ancient times. But the present cultivation of opium there seems to have been introduced by the Turks in modern times, while the area was under Turkish rule, and it is said that the peasants who grow the opium there are largely of Turkish stock. The producing area is divided between three countries, Yugoslavia, Bulgaria and Greece.

ASIA MINOR

Turkey is the chief opium exporting country of the world. There is no domestic manufacture, and there has been no exportation to opium-smoking countries since 1941—the entire production, except for some possible smuggling, is exported to the manufacturing countries. By Law 2253 the Ministry of Agriculture fixes each year the areas where

(Continued on next page)

MAP NO. 218.2
AUGUST 1949 UNITED NATIONS UN PRESENTATION 1350.2

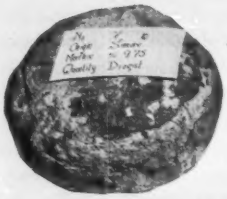
opium can be produced. Ordinarily the same twelve vilayets are named, in which production is permitted in the whole vilayet, and some counties in other vilayets, which may be changed from year to year. There are three producing districts. The chief one, west of Ankara, includes the vilayets of Afyon-Karahissar, Bilecik, Burdur, Denizli, Eskishehir, Isparta, Konya and Kutahya, and generally some counties in Ankara and Bursa. These produce "druggist's" opium which constitutes about 90 per cent of Turkish opium. This has long been the opium chiefly used in the world for opium medicines and for manufacture of alkaloids. The other two producing districts, east of Ankara, produce "soft" opium. This opium was formerly exported to opium-smoking countries; the word "soft" is used in the opposite sense to "harsh," not as signifying soft to touch.

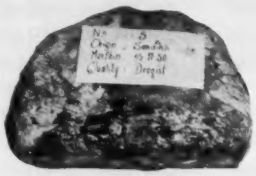
At the present time this opium is mixed in with the rest, for export to manufacturing countries. The more important of the two districts producing "soft" opium takes in the vilayets of Amasya, Chorum and Tokat. These produce a high grade of opium, containing some 13 to 14 per cent morphine. The remaining district consists only of the vilayet of Malatya. This produces "soft" opium of about 10 per cent morphine. There are some additional areas in which the poppy may be cultivated for seed alone. No production of opium is permitted within about 100 kilometres of the border or coast. Turkey tries to maintain a constant production of opium. The area is intended to be about 30,000 hectares or a little less each year. Moreover, continuous records are available. Under these conditions the averages are more significant than in most other cases. The average production has been some 243 tons annually (1938–1947) and the average exports nearly 201 tons. The difference is largely due to drying. However, the production figures are estimates, and though established by the Government, they may be too high. There is no exact check on them because trade in opium is free in Turkey. That is, anyone may possess opium and the peasant producers and opium merchants may, and sometimes do, hold some of their opium for several years. The standardized Turkish opium which is exported usually contains 12 to 14 per cent of morphine. The following figures give the area, production, quantity standardized, and exports for the ten years 1938–1947.[16, 14, 19]

TURKISH OPIUM PRODUCTION

Year	Area (hectares)	Production of raw opium (kilogrammes)	Quantity Standardized (kilogrammes)	Standardized Opium Exported (kilogrammes)
1938	28,416	246,000	216,317	115,919
1939	31,120	262,000	462,239	338,479
1940	29,852	223,000	232,044	335,591
1941	29,790	206,000	113,293	199,752
1942	28,314	285,000	182,570	218,993
1943	29,548	289,000	132,989	153,187
1944	26,847	183,000	122,231	88,225
1945	25,475	147,000	119,406	162,005
1946	29,083	262,226	223,365	198,145
1947	30,662	333,710	202,674	209,030
Average	28,911	243,694	200,713	200,933

Below: two samples of Turkish opium not yet standardized, wrapped in poppy leaf. *Right:* Standardized Turkish opium. Note coating of chaff and the granular texture where broken.





Official UN photos

CENTRAL ASIA

Iran is one of the chief opium-producing and exporting countries. It is also one of the countries where opium addiction is widespread. In 1946 the production of opium was prohibited by decree, but this decree has never been enacted into law by the Iranian Parliament. The official figures for production of opium represent the quantities taken over by the government monopoly. At the fourth session of the Commission on Narcotic Drugs (1949) the representatives of the United States and the United Kingdom estimated the current production (1948–1949) at 1,500 tons or more annually; this of course refers to production which is illicit under the decree. The representative of Iran considered this figure far too high, and called attention to the official figures, which showed a maximum of 789 tons (in 1940) during the last ten years, when production was legal in Iran. He indicated a possible production of 350 to 400 tons.[20, 21] The largest production ever reported by Iran was in 1936 (Iranian year 1315, beginning 21 March 1936); the amount was some 1,346 tons. It was definitely stated then that this large amount was due to an improved method of collection, begun the year before, and "in no way the result of extension of the culture",

(Continued on next page)

Year	Area (hectares)	Production (kg.)	Consumption (kg.)	EXPORTS* to countries manufacturing drugs for medical purposes (kg.)	EXPORTS* to opium-smoking countries and others** (kg.)
1937	22,305	521,000	273,000	59,821	179,371
1938	26,963	704,000	269,000	118,091	357,739
1939	24,543	672,000	300,000	62,964	60,545
1940	28,036	789,000	307,000	3,631	131,754
1941	37,113	761,000	263,000	—	124,600
1942	11,820	210,000	211,000	105,512	—
1943	1,068	215,000	122,000	9,367	—
1944	12,740	131,000	66,000	17,000	—
1945	9,287	182,000	64,000	—	—
1946	18,400	516,000	28,000	53,750	—
1947	187	5,600	nil	98,874	21,879***
1948	1,417	34,100	nil	—	48,575

*The separation of exports into two classes has been made by the Secretariat.
**This column includes the exports to Japan in 1937.
***The figures originally given for 1947 included a duplication of the shipment shown in 1948. See reference 62.

although the amount reported for 1934 had been only 459 tons.[22] At the third session of the Commission on Narcotic Drugs the United States representative remarked that Iran's production had been estimated in 1947 at 300 tons as against 800 tons in 1946 and an average of 1,000 tons in pre-war years.[23a] It is evident that the word "production" is sometimes used in two different senses. As regards addiction, at the fourth session of the Commission on Narcotic Drugs the representative of Iran stated that opium smoking had been permitted until 1946 when it had been prohibited; today there were officially no opium smokers.[20] The official figures show an average annual consumption by addicts of some 270 tons, 1937 to 1942; the population at the time was about 16,500,000. This consumption was given as "nil" for 1947 and 1948. Iranian opium was issued for home consumption in the form of sticks about six and one-half inches long, wrapped in paper with Persian characters and a design printed in color; blue, purplish red or green. These sticks were frequently found in the illicit traffic. Iranian opium usually contains about 10 to 12 per cent morphine. It is produced in a large part of the country, chiefly in the north-east and the west-central to south-western part. Khorassan, Luristan, Isfahan and Fars are provinces of the largest production. There is also production in Kermanshah, Hamadan, Yazd and Kerman, and a little elsewhere. Opium is not the exclusive crop of any cultivator. Generally it is grown in a system of crop rotation, followed by melons or vegetables, then by cereals, in successive years. The official figures for the whole of the country, recently transmitted by Iran,[24] are tabulated on page 11.

Afghanistan prohibited opium production in 1945. No information as to the observance of this prohibition is available. The Annual Report of India for 1946 mentioned continued smuggling from Afghanistan. The last Annual Report sent by Afghanistan was that for 1937. This stated that in 1932 the area of cultivation was 3,846 hectares and that there had been no change. The production was then estimated at 74.5 tons. Information regarding exports is fragmentary, as Afghanistan has usually not reported, but some figures have been obtained, chiefly from importing countries. Importations by the Union of Soviet Socialist Republics from Afghanistan averaged nearly 18 tons, 1934 to 1937, and reached 50.4 tons in 1938.[25] Germany imported 1.5 tons in 1935 and 1936; the United States, some Afghan opium from 1937 to 1939—4.25 tons in 1938; France 2.4 tons in 1939. In 1943 the United States imported 22 tons and in 1945, 2.4 tons. The Afghan opium imported into the United States was mostly of very high grade, 13 to 16 per cent of morphine. A second grade contained some 10 per cent morphine. The producing areas, according to Adden's book, were two; one in western Afghanistan, adjacent to Khorassan province of eastern Iran, and the other in eastern Afghanistan, near Kashmir.[26]

Kashmir produces a little opium. According to the last available report, 123 hectares were cultivated in Jammu and Kashmir in 1945, yielding 664 kg. There has not been much change in the last ten years, although the area has been increased somewhat. The consumption of opium in Kashmir is quite moderate.[27]

YEAR	AREA (HECTARES)	PRODUCTION (KG.)	CONSUMPTION (KG. PER 10,000 INHABITANTS)
1938	50	567	1.9
1939	54	782	2.1
1940	64	490	1.6
1941	57	488	1.4
1942	106	795	1.6
1945	123	664	1.5

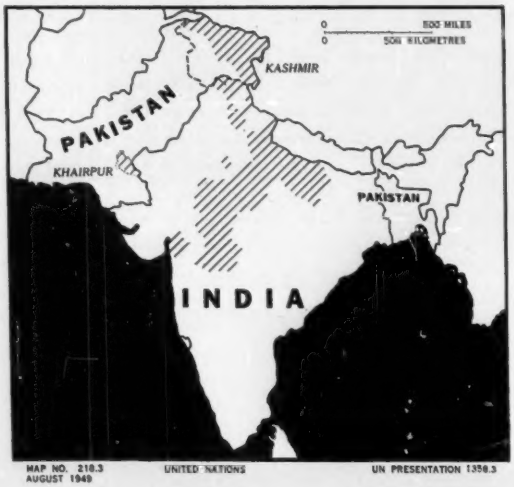
Pakistan. In general, the cultivation of the poppy for the production of opium is forbidden. However, 45.2 hectares of cultivation were allowed in Khairpur State in 1947, under the State administration. The amount of opium produced was not stated, but from past records was probably about 10 kg. per hectare, or some 450 kilogrammes total. Khairpur has been a small producer under the British administration.[27]

YEAR	KHAIRPUR STATE: AREA IN OPIUM (HECTARES)	PRODUCTION (KG.)	CONSUMPTION (KG. PER 10,000 INHABITANTS)
1938	26	198	8.0
1939	22	251	7.5
1940	11	135	9.1
1941	19	215	5.8
1942	20	243	7.2
1945	19	183	8.6

India is one of the major opium-producing, opium-exporting and opium-using countries. The former India is, of course, now divided into India and Pakistan (and Kashmir). However, all the important opium-producing districts are in the

present India. The former India was divided administratively into "British India" and the "Indian States." Often statements concerning opium production, laws, use, etc., in "India" actually applied only to "British India." The Indian States were not a unit, except in allegiance to the British Crown, but in some respects were treated collectively. Two separate Annual Reports were issued. To a considerable degree the division still exists, although the Indian States acceding to India are now more closely integrated with the rest of the country. The production of the Dominion of India in 1947 was some 129 tons; in 1946 the production in British India was some 165 tons, and in the Indian States some 274 tons.

Production has undergone a number of ups and downs. In the last century it increased tremendously, until the cultivation covered more than 2,000,000 hectares, enormous quantities of opium then being exported to China. Increasing restrictions caused a decline, accelerated by the Opium Conventions of 1912 and 1925. In 1926 India decided to discontinue all exports to opium-smoking countries within ten years, with the exception of some small quantities allowed to countries having a special relationship to India. This program was completed in 1935. The most important exception to its operation at present is Burma, which was administratively a part of India in 1926, and therefore not included in the terms of the declaration. Burma obtained over 22 tons of opium from India as recently as 1946.[32] The low mark in production came in 1941, when the whole of India produced less than 171 tons. Production was then stepped up on account of the war, and reached a maximum of nearly 751 tons in 1945. Since then it has been rapidly reduced. Before the war, exports to manufacturing countries were negligible, but this trade was developed during the war, and reached some 104 tons in 1946 and nearly 118 tons in 1947, exported for medical and scientific needs.[27, 32, 14]



MAP NO. 210.3 AUGUST 1949 UNITED NATIONS UN PRESENTATION 1358.3

Production in British India was very closely controlled. Cultivators were licensed, the area to be cultivated was specified, and the entire amount of opium collected had to be turned over to the Government immediately after the harvest. This system is being continued by the Dominion of India, and controls are progressively tightened in the Indian States.

India has a high consumption of opium. Most of it is eaten rather than smoked; most of it is taken for "quasi-medical" purposes, and it is difficult to draw a line between such uses and outright addiction. In March 1948 the Government of India decided to agree to the suppression of the use of opium except for strictly medical and scientific purposes. The Provincial Governments have been asked to decrease their purchases of opium from the Government factory at Ghazipur by ten per cent annually. The Indian States are also asked to begin a gradual suppression.[28]

Comparisons have often been made between the consumption per capita in India and the figure suggested by the League of Nations. At the Conference which resulted in the 1925 Convention the report of the Mixed Sub-Committee first set a figure of 600 mg. per head per year. The Health Committee, after further examination, reduced the figure to 450 mg. with three reservations.[29] Of these reservations the second, that the figure should apply only to countries which possess a highly developed medical organization, rules out India, but the figures may nevertheless be of some interest. The consumption in the former British India has been for some years below the higher value mentioned. On the other hand, the consumption in some, though not all, of the Indian States is large in comparison. In its capacity of easing all pain and sorrow, opium is still offered as a matter of hospitality in some parts of India. "The excessive consumption (in the State of Jaisalmer) may also

(Continued on page 26)

DETERMINING THE ORIGINS OF OPIUM

Physical and Chemical Tests Aid Narcotics Authorities in Identifying Opium Seizures

Turkish Government Office of Soil Products

NATURE OF THE PROBLEM

The determination of the country of origin of seized opium is a problem of enforcement of the international laws and rules governing narcotics. Where does all the opium come from that provides the illicit traffickers with their wares and the clandestine factories with the raw material for the manufacture of drugs for the illicit market? Is it produced illicitly, or diverted from legal production? At what stage and in what countries is control lacking? The problem is no small one. Seizures, in general, constitute only a small part of the total volume of illicit traffic, yet, for example, Egypt alone seized over 4½ tons of opium in 1948.[1]

The 1931 Convention laid upon the High Contracting Parties the obligation of communicating, among other things and as far as possible, the origin of the drugs seized in each important case, and their marks and labels. This provision technically applies only to manufactured narcotic drugs, but another provision calls for "any other information which would assist in the suppression of illicit traffic", so that seizures of raw opium are thus included.[2] At the time the 1931 Convention was drawn up, huge quantities of morphine and heroin were manufactured legally and yet used for addiction purposes. As a result of the operation of this convention and national laws, most of the narcotics manufactured legally now stay under close control and serve only medical uses. The heroin for addiction purposes is now chiefly manufactured illicitly, in clandestine laboratories. Such laboratories require illict opium. Thus illicit or diverted raw opium is now the foundation of the illicit

traffic in narcotic drugs. It may be eaten in its crude state, it may be made into "prepared opium" for smoking, or it may be used to manufacture the still more potent "white drugs," morphine and heroin.

The Advisory Committee of the League of Nations on the Traffic in Opium and Other Dangerous Drugs repeatedly urged member nations to obtain and transmit all possible information relative to the origin of seized narcotics, and the present Commission on Narcotic Drugs of the United Nations has done likewise.[3]

The origin may be deduced from attendant circumstances: the itinerary of vessels on which the narcotics are smuggled, newspapers used for wrappings, and so on. It may be learned from the statements of the traffickers when arrested, or from what they tell undercover agents of a Government. It may be apparent from marks, labels and the like, particularly in case of drugs that are diverted from legitimate uses. But all these means have very decided limitations. Newspaper wrappings may not mean anything, traffickers may not tell the truth, labels may be forged. It will be much more satisfactory if some characteristics of the drug itself can be used to tell its origin—at least to supplement and confirm the other evidence—possibly to show in some cases that suspicions may not be correct, in other cases to establish the truth beyond a reasonable doubt.

Not only is opium the most fundamental material of the illicit traffic, but also its characteristics make it the most suitable substance for an attempt to determine origins by physical and chemical means. Factory-made products, such as the pure salts of morphine or heroin, show few points of difference, no matter where they are made—although the products made in clandestine laboratories or factories are not wholly pure and still show some "marks of origin", frequently including characteristic adulterations. Opium offers by far the best chance of determining origin in this way. It is a crude, natural product and like other such products differs greatly when produced in different parts of the world. These differences are due to methods of handling and shaping the cakes of opium, both by the national monopoly and before that by the peasant producer—to the traditional methods of obtaining the opium: time of incision, number of incisions of each capsule, length of time the latex is left on the capsule before collection, how it is dried, and so on—to differences in soil and climate of the poppy-growing regions—to differences in the variety of poppy grown. It is not necessary that we know the precise reason for every difference, though that may help, as long as we know that the differences exist and what they are.

An expert with many years acquaintance with opium from different sources, merely by looking at a piece and cutting into it, noting its appearance, colour, texture, odour, etc., can often tell where it came from. What is needed is to make such judgments more scientific, more definite, more quantitative, less dependent on vague impressions which cannot be fully explained; dependent rather on physical and chemical criteria that can be used by competent chemists anywhere in the world.

POSSIBILITY OF TYPES

In beginning a study of methods for determining the origin of opium, it is well to look for difficulties in the way. First and broadest is the fact that the substance involved is always opium: that is to say, between two different seizures of opium we can hardly expect to find any absolute differences. Purely qualitative differences will not often be satisfactory: quantitative differences must be established instead. On the other hand, too great variation occurring irregularly will be equally destructive to any possibility of determining origin. If it turned out that every farmer produces a different "kind" of opium, equally likely to resemble some grown in a distant country or on an adjacent farm, it would be impossible to establish anything. This may be the case with respect to some kinds of variation. It is necessary to find types of variation that stay within certain limits in one region, and within different limits in another region. These limits must not overlap too much—preferably not at all—or it will not be possible to assign many individual samples correctly, even though the averages for regions may be different.

If the analysis is carried far enough, any two samples from different plants—even in the same field—will show some differences, large or minute. It is essential, therefore, not to make extremely fine distinctions, but to depend on general types. The first step is to show that such types do exist, the second to show that they correspond definitely (even if not perfectly) to different countries of origin.

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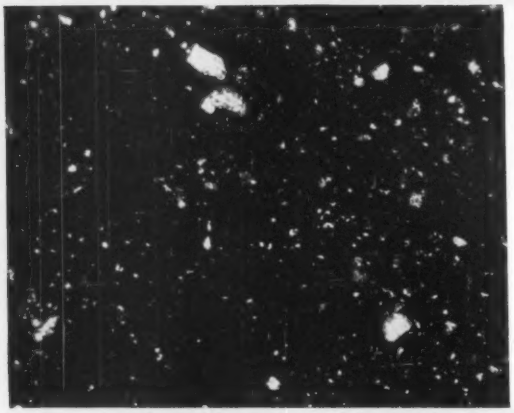
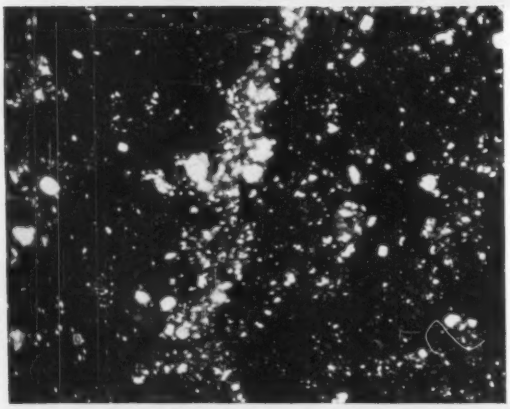
Various types of Opium as viewed through the polarizing microscope





Two samples of Yugoslav opium.

To be of any use for the present inquiry, the types must correspond fairly well to geographical regions or localities. They may not, however, correspond to the political boundaries of countries in all cases. Macedonia, for example, is divided between three countries, each of which allows opium production in its part of Macedonia. No study has yet been made of the necessary criteria for distinguishing Yugoslav, Bulgar and Greek opium. On the other side of the problem, within a large producing country such as Turkey, Iran or India, there may well be several quite distinct geographical types, produced in different provinces or districts. Turkey, for example, recognizes a broad distinction between "druggist" opium and "soft" opium, and these two kinds are produced in separate districts.

A broad array of data is necessary. However, we do not have to begin the project by testing thousands of individual samples, for much scattered knowledge is already available about different geographical types of opium. By utilizing and confirming this existing knowledge, several geographical types can be recognized and described from the examination of only a few samples of known origin. Furthermore, once we are sure that certain characteristics vary geographically, a new type can be described from a few authentic samples, or even from a single one that is representative of at least part of the production of a country. For example, suppose a single authentic sample of Iranian opium, representative of the production of a particular province, is examined and fully described. Even if it should later be found that most Iranian opium is markedly different in certain respects, the sample first described would remain an example of *one type* of Iranian opium.

PRECEDING WORK

To some extent physical and chemical criteria have always been used in judging the origin of opium, ever since enforcement officials first became concerned with the problem. At least the general appearance, colour, texture, oiliness or lack of it, and so on, have been noted and used to help form an opinion by those who have had any experience with opium from different lands. The morphine content also has been generally used. It is well known, for example, that Turkish opium is generally around 12 to 13 per cent as compared with something like 9 to 10 per cent for Indian opium.

The researches of Annett and collaborators clearly established that the low morphine content of Indian opium is chiefly due to a different method of collection; i.e., incising the capsules more than once instead of once only as in Anatolia.[4] Regardless of the reason, the difference is a long-standing one and still exists.

The oily character of Indian opium has often been noted. Rakshit has mentioned that the peasant cultivators of certain States of central India customarily add some oil to their opium, and cannot easily be dissuaded from the practice.[5] To some extent, therefore, the oily characteristic of Indian opium is not a natural one. It is still just as good an indication of origin, or even better, except that we must reserve the possibility that opium from other countries, if adulterated with oil, might be similar to Indian opium in this respect. Levine, while chemist for the United States Narcotics Bureau, used an empirical test for Indian opium which apparently depended on this characteristic.[6]

Other characteristics have been used for the present purpose only to a very limited degree.

The amount and colour of the ash have some bearing on the question of origin. Annett, in examining samples from all opium-producing parts of India, stated that the ash was, in practically all cases, pure white.[7] The ash from Turkish samples is usually grayish white and greater in amount than the ash from Indian samples. The ash of opium from other countries is often decidedly coloured. Generally the colour is yellowish to brown, and due to iron. This may be due to incidental contamination, perhaps from the use of iron utensils, pots, or the like, in connexion with collecting or processing the juice and the resultant opium.

The crystalline character of Persian and Indian opium was noted in the National Standard Dispensatory in 1905.[8] Levine also noted that crystals (rods) were easily discovered in Indian opium, under the microscope.[9] Apparently the polarizing microscope, which makes the test so much easier and more effective, was not used in these earlier observations.

Besides morphine, other alkaloids can supply excellent indications of origin. The greater codeine content of Indian and Persian opium as compared with Turkish and Yugoslav has long been known. Accurate commercial analyses since 1938 have shown that the two types do not even overlap, the

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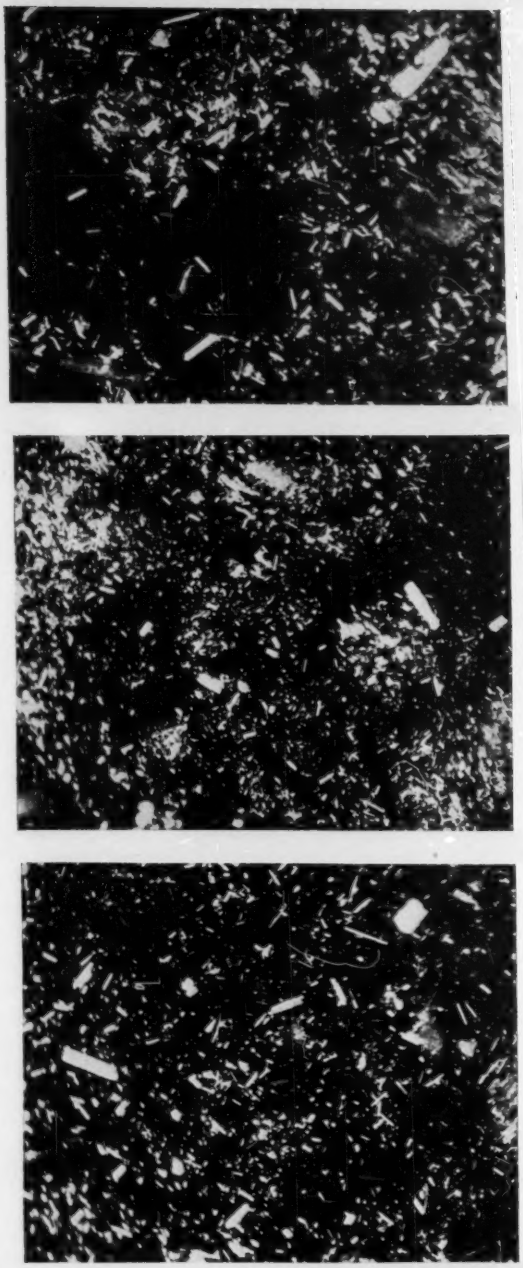
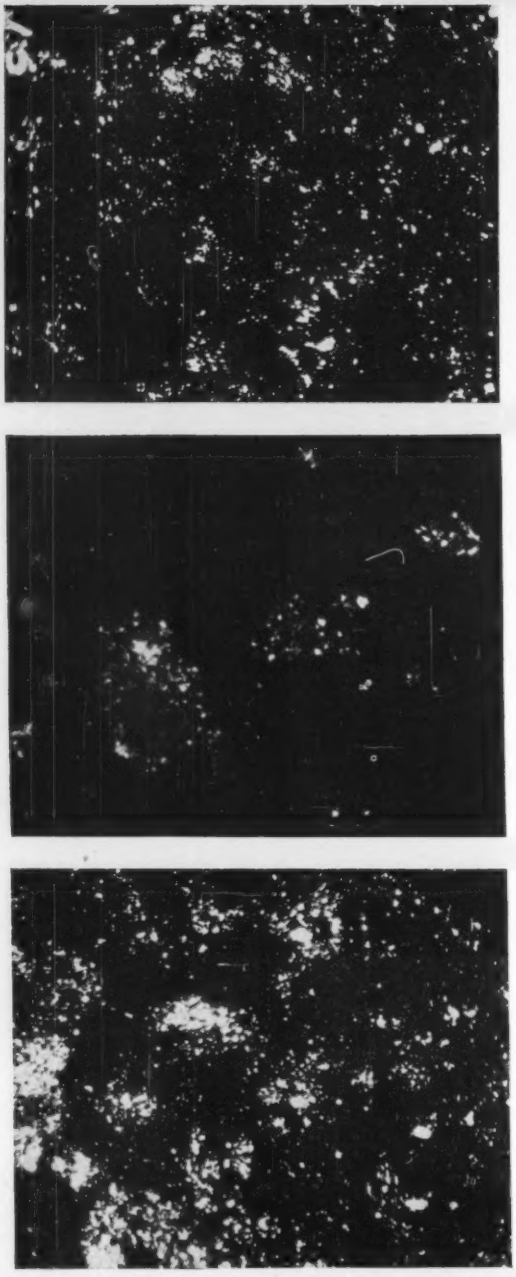


Photographs of Indian opium.



Three samples of Turkish opium.

Turkish or Yugoslav opium usually containing not even half as much codeine as the opium of India, Iran, or Afghanistan.[10]

L. van Itallie and M. Kerbosch in 1910 examined qualitatively the opium from seven regions of the world for the six principal alkaloids. In four of their five samples from India there was too little papaverine for detection by their test.[11] During the war, when the United States turned to Indian opium for a time, its low content of papaverine was commercially verified. The Afghan opium, but not Iranian, was also low in papaverine.

Narcotine is known to be especially high in Iranian opium.

Rakshit remarked in 1921 that thebaine is "only nominally present in Indian opium".[12] This has been found not to be true of all Indian opium of recent years, but it is still true of a type of Indian opium.

In 1918 Watt commented on the relatively high content of cryptopine in Indian opium, about 0.3 percent,[13] which is high for this alkaloid, only seventh in average amount in opium (following morphine, narcotine, codeine, thebaine, papaverine and narceine).

One very minor alkaloid of opium is easily detected by its yielding a strong red colour when heated with mineral acid. It was discovered by Merck in Bengal opium in 1837.[14] It has been described under the names "porphyroxine" and "meconidine", but neither description was entirely correct.[15] It is known that this alkaloid occurs especially in Indian opium and several chemists have proposed tests for Indian opium based on its detection. However, such tests on a merely qualitative basis are not very satisfactory. As for the other alkaloids the determination has to be quantitative to be really useful.

DEVELOPMENT OF METHODS OF EXAMINATION AND ANALYSIS

At the time the present studies were begun the facts mentioned in the preceding section were, for the most part, just scattered observations. Few of them had been used at all for the specific purpose of determining the origin of a sample of opium. Very seldom had even as many as three or four of the characteristics been determined on a single sample, to show that they occurred in a definite combination. Indeed, methods were not available for making all the suggested observations on one

sample in any reasonable time, the polarizing microscope had not been used, and there has been no quantitative determination of "porphyroxine".

The first task of the writer was therefore to devise some methods which could be used for the rapid analysis of opium for those characteristics most likely to be useful in forming a judgment of origin. At the same time these methods were applied to known samples, particularly of government monopoly opium, to test and prove the conception that results of certain kinds occur in definite combinations that represent distinct *types* of opium.

The tentative methods devised are included in the United Nations document E/CN.7/117/Add.2 and document E/CN.7/117, parts IIA and IIC.[16] It is not intended here to go into the details of the chemical procedures, but the nature of the most useful methods will be mentioned. These procedures still take plenty of time, but at least an important seizure could now be examined as completely as necessary in the course of a few days.

The four methods thus far found most useful in giving results clearly corresponding to geographical areas are the following:

1. Microscopic examination
2. Colorimetric determination of "porphyroxine-meconidine".
3. Codeine determination
4. Morphine determination

Other very useful determinations are those for fats or oils, narcotine, papaverine, thebaine and ash (amount and colour).

Microscopic examination. A small piece of opium is dispersed on a microscope slide by means of a drop of water, and the preparation allowed to dry up. Examined under the polarizing microscope with crossed nicols, Indian opium shows multitudes of bright, well-formed rods. Turkish opium on the other hand shows comparatively little birefringent crystalline material and it is present merely in the form of small irregular particles, with few or no rods. The crystalline material has been found to be narcotine in both cases, but the reason for the different shapes is not known. Many variations can be noted in size and shape of crystals. Yugoslav opium is similar to Turkish. Iranian opium is highly crystalline, sometimes very like the Indian and sometimes showing chiefly very numerous ir-

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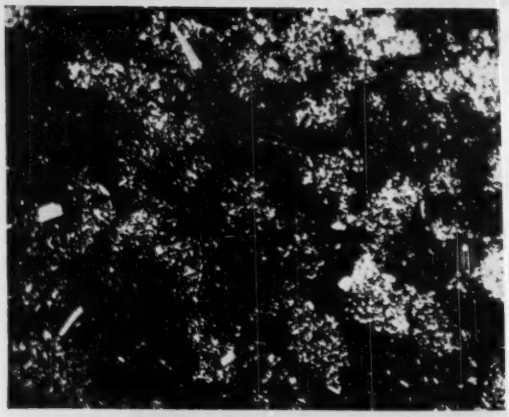

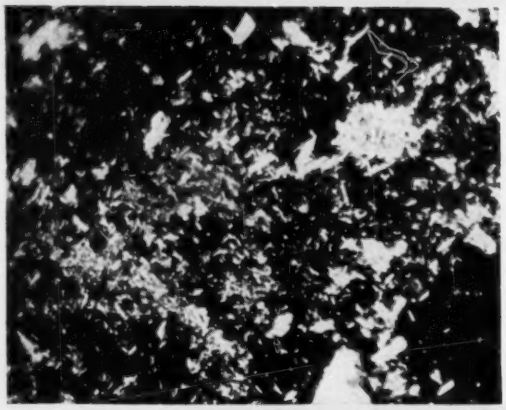

Opium from Iran, Mexico and Palestine.

Victor W. von Hagen

THE COMMISSION OF ENQUIRY ON THE COCA LEAF

At the beginning of September this year the United Nations dispatched a Commission of Enquiry to South America to study certain aspects of two uses to which the leaf of the coca bush is put.

The coca bush is an evergreen shrub which belongs to the genus *Erythroxylum* and is native to western South America. There are a considerable number of wild species of the genus but the species that provide the coca leaves of commerce—*Erythroxylum coca* Lamarck and *Erythroxylum novogranatense* (Morris) Hieronymus—are cultivated over a wide area in that part of the world. These species are grown successfully in tropical regions, sometimes in the lowlands but more often in sheltered places in the mountains, up to a height of about 2,000 metres. The leaves can be harvested from two to four times annually depending on climatic and other conditions and in certain areas of Peru, for instance, the crop is usually gathered in March, at the end of June and in October or November.

Coca leaves are put to four principal uses: for the manufacture of flavouring extracts, in medicine, for chewing and for the manufacture of cocaine; and it is a study of some of the results of the last two of these uses which the Commission of Enquiry has been charged to make.

(Continued on page 22)

Vase from the ruins of Chan chan, Peru (approximately 13th century). The sculptured figure is chewing coca and hurrying the flow of the alkaloid by using lime.

Victor W. von Hagen

Hillside terrace cultivation of coca, near Paucartambo, Cusco, Peru.

TERMS OF REFERENCE

Nobody knows for certain for how many hundreds of years the leaves of the coca bush have been chewed in South America. It is probable that the practice was well established before the beginning of the eleventh century and it is certain that coca leaves were chewed during the lifetime of the Inca Empire. Precise explanations for the origin of this age-long habit have not yet been made but it is possible that it owes its beginnings to conditions of life that were always severe, especially in so far as the difficulties of producing enough food were concerned, and that it was used from the start to ameloriate the bodily distress caused by the hard conditions endured by the inhabitants of that part of the world. Even today man in those regions is often engaged in a life-long struggle with the forces of nature for a bare existence, and it is where such conditions continue even in the twentieth century to exist that the habit of chewing the coca leaf is now most widely practised. Such is the most generally admitted explanation of the origin of the custom, but it is emphasized that the possibility of the practice having originally had a considerable sacred or religious aspect, which may indeed still continue to exist in modified forms, should by no means be excluded.

Harvesting coca near Cusco, Peru.

Victor W. von Hagen

One of the Commission's tasks will therefore be to try to assemble a body of evidence, of strictly scientific validity, to prove or disprove this theory that the chewing of the coca leaf helps man in his fight against an inimical environment, whether that environment results from entirely natural conditions or from natural conditions partly modified by economic and social factors. In the accomplishment of this task the Commission can hardly fail to collect considerable data on the physiological effects which the habitual chewing of coca leaves have on the individuals concerned. It will not, however, be prejudging the results of the Commission's work to state now that some of the effects which the leaf has on coqueros—as the habitual chewers of it are known—are due to the presence of cocaine. The similarity between the effects which the coqueros themselves say result from their chewing and those observed from clinical studies of the results of repeated doses of cocaine on the human body would seem to leave very little doubt on this score.

The amount of cocaine present in coca leaves varies with different species and with the conditions under which they are grown; but for those cultivated in South America analyses of the cocaine content give figures usually ranging from 0.25 per cent to 0.90 per cent. The amount of cocaine which a coquero will absorb in a day also varies very greatly but it is quite common for an habitual chewer to ingest some 20 or 30 times more than the usual dose given for medical purposes.

In comparison with the age-old problems connected with the chewing of coca leaves, those raised by the manufacture of cocaine must be regarded as very recent, since it was only in 1860 that this drug was isolated in a pure form. For the manufacture of cocaine, itself an ecgonine alkaloid, the quantity of cocaine present in the coca leaf is not as important as the total amount of all ecgonine alkaloids which can be extracted from it. South American coca leaves contain from 0.5 to 1.0 per cent of these alkaloids and the international estimates of the world requirements of cocaine for medical and scientific needs amount at the present to some four tons annually, for the manufacture of which 500 to 700 tons of coca leaves are required.

Comprehensive figures for the annual coca leaf harvest are not available, but apart from those chewed and put to the other uses referred to above,

it is known for certain that a great many tons of leaves are used to make cocaine that is used illicitly and not for medical and scientific needs. This cocaine is distributed in the highly lucrative illicit traffic which in turn is the main source from which addicts to this drug obtain their supplies. It is extremely difficult to make even an approximate estimate of the amount of cocaine which is disposed of in this way, but that it is a matter of growing concern to the national administrations in a number of countries was brought out forcibly in the debates of the Commission of Narcotic Drugs on the general question of drug addiction during the session which the Commission held in the spring of the present year.

Since the primary purpose of the international control of narcotic drugs is to prevent the illicit traffic in narcotics and to stamp out addiction to these drugs, many of the Governments that are parties to the international drug conventions and protocols have a great interest in the abolition of the manufacture of cocaine for the illicit traffic, and it would accordingly seem highly desirable that the process of extracting this drug from coca leaves should be strictly controlled everywhere in the world that it is carried out. The investigation of the possibilities of instituting such measures of control on both the national and international levels, is, accordingly, the second of the tasks with which the Commission of Enquiry on the Coca Leaf has been entrusted.

THE COCA LEAF IN PERU AND BOLIVA

In South America the coca leaf is chewed to a greater or lesser extent by certain classes of the populations of Argentina, Bolivia, Brazil, Chile, Colombia, Peru and Venezuela. The practice is, however, most widespread in Bolivia and Peru, and in these two countries the problems which the habit engenders are consequently pressing more urgently for solution. In order to appreciate the complexity of these problems and their fundamental relationship to the way of life of many of the inhabitants, it is necessary to give some consideration to the historical, geographic, economic and social conditions under which the habit has grown up and continues to persist.

The 1,249,049 square kilometres of land surface which constitute Peru may be divided up into four

(Continued on next page)

Willard Z. Park

An Ica tribesman of Sierra Nevada, Colombia, using the lime stick which is put into his mouth with the mastication of coca leaves.

areas, each having a different character and climate. The narrow coastal plain between the Pacific Ocean and the western ranges of the Andes is largely desert but is crossed at several places by rivers. Vegetation grows along these rivers and in this area of the country Peru grows most of her cotton and sugar. The Andean region is 300 to 400 kilometres wide and is composed of high mountains and plateaus, the latter varying in height from 1,200 to 6,000 metres above sea level. The mountains descend, often precipitously, into valleys, some of which are of considerable width. The vegetation of these valleys, where the majority of the Andean population is concentrated, presents a sharp contrast to that of the high desert plateaus which surround them. The River Huallaga rises in the area and runs through a valley of the same name in which the coca leaf is both grown and consumed. The eastern foot-hills of the Andes comprise a third region known as La Montana or Sierra whose altitude varies between 200 and 300 metres, and where the adequate water supply gives much more vegetation and frequently soil that can be worked into rich arable land. The climate is midway between the humidity of the forests and the rigorous cold of the high plateaus. The fourth region, the Amazon Valley, is almost at sea level and has abundant rain and a lush tropical vegetation.

According to Ferrero, the national revenue of Peru in 1942 amounted to 2,130 million sols, of which sum agriculture and cattle breeding accounted for 745 million, industry for 300 million and mining for 375 million (in July 1949 the sol was worth fifteen United States cents at the official rate of exchange and about five cents on the free market).

The inhabitants of Peru number something over 8,000,000, of which about half are either Indians or mestizos who live principally in the Sierra and in the valleys and on the plateaus of the Andean region. In 1940, forty per cent of the population could be considered as economically active and the distribution of this population in the occupations mentioned above was calculated as: agriculture, 52 per cent; cattle breeding, 10 per cent; industry, 15 per cent; and mining, nearly 2 per cent (R. A. Ferrero: La Política Fiscal y la Economía Nacional: Lima, 1946).

Among the indigenous population the land system extends from individual ownership to various modifications of the collective agrarianism of the Incas. As a general rule, the cultivation of the coca bush occurs under the individual property system, since the coca plantations do not usually belong to Indians although certain indigenous communities do cultivate the plant.

Bolivia, with a territory of 1,075,794 square kilometres, is bounded on the west by part of the Andes range in which there are several passes more than 3,000 metres high. Further east the peaks of the Cordillera Real rise to heights of more than 6,000 metres, and from this range two further chains of mountains containing numerous fertile valleys extend in south-easterly direction. The high plateau (altiplano) lacks water and agriculture is difficult, which is far from being the case in the valley areas and "yungas." It is in these latter regions that the production of coca leaves is centered. To the east and north of the central range of mountains extend the low tropical areas which occupy a great part of Bolivia. Here the rains are plentiful and violent and the region is sparsely inhabited.

It is estimated that in 1940 the revenue of Bolivia was between 4,400 million and 7,350 million bolivianos, of which agriculture provided 3,550 millions (in May 1949 the boliviano was worth a little more than two United States cents).

The inhabitants number 3,922,000, of which some 500,000 are white, about 2,000,000 Indian and about 1,400,000 mestizo. About 80 per cent of the population is believed to be concentrated in the higher regions of the country, the valleys and "yungas" being the most densely populated. Some 35–40 per cent of the population is economically active, and on this basis and that of the foregoing figures it may be said that the productive population consists of about 1,500,000 persons, of whom some 85 per cent are engaged in agriculture and cattle raising.

GEOGRAPHICAL AND HISTORICAL CONSIDERATIONS

As has already been pointed out, the practice of chewing the coca leaf was already in existence before the time of the Incas. During the Inca period it would seem that the habit extended over a wider area than at present, embracing various parts of Central America (Nicaragua), part of Venezuela, certain regions of the Amazon and wide areas which now constitute Bolivia, Colombia, Ecuador, Peru, and to some extent, the north of Argentina. The areas where the practice was prev-

alent seem to have varied greatly in extent, and in Ecuador, for example, it appears never to have been so widespread or important as elsewhere. At present it has disappeared from Nicaragua but continues to persist to some extent in Brazil and Venezuela.

It is generally believed that during the Inca Empire the chewing of the coca leaf was reserved for the upper classes of the population, and it is thus likely that the habit, though widespread geographically, did not reach great proportions. The fall of the Empire was accompanied by an economic, political and social crisis which favoured the intensification of the habit. During the conquest and the colonial period, the Spaniards noted on several occasions the potential danger which the practice represented to the Indians and in 1560 and 1609 they issued restrictive edicts in an attempt to control it. In spite of their efforts, the growing of coca leaves increased and with it the prevalence of chewing; and since these countries became independent of Spain the habit has continued. The number of habitual chewers has, however, considerably increased.

Since the early 19th century a body of literature has gradually been built up as a result of studies made on coca leaf chewing. This literature shows the existence of two sharply divided schools of thought on the matter: one favourable to chewing and the other condemning it as a practice dangerous to the bodily and mental health of the coquero. Research work on the coca leaf and its effects started in Peru in 1937 under the auspices of the Department of Pharmacology of the University of Lima and is still going on; and here again the tendency of authorities on the subject to take diametrically opposed views can be clearly seen. There is, however, a considerable measure of general agreement that has a complex nature of both cause and effect, and should not, therefore, be considered as an isolated fact in the life of a coquero, but as a practice intimately linked to the conditions under which he lives and the climatic, economic and social factors which produce those conditions.

It has been pointed out that the origin of the habit is lost in the past but that it probably began as a part of man's struggle for existence in inhospitable areas having a harsh climate. It is worthy of note that under the Incas, whose empire was essentially founded upon agriculture, the relative abundance of food which then existed in areas where there is today a scarcity and where the chewing of coca leaves is now very prevalent was made possible only by a directed collective agricultural system; and that, at all events in the earlier years of the Empire, the habit was restricted to a few individuals. It may, however, be supposed that as the Empire decayed it was granted much more frequently, and that the later civil wars, with their consequent disruption of the central administration of the hierarchy, greatly facilitated the extension of use. In any case it is a known fact that from this time the chewing of the leaf became much more widespread and later under the Spanish colonial regime established itself firmly in those areas where it is largely found today.

It is not possible to delimit strictly precise geographical regions where the habit of chewing exists, since in those regions where the habit is general there are areas where no coca is chewed; conversely, in regions where coca is not generally chewed there will be found groups more or less isolated, sometimes of a stable character and sometimes transitory, who regularly chew the leaf. In Peru the habit is found mostly on the high plateaus and in the mountains but it is also found at lower altitudes. In the south, the Departments of Cusco and Puno are the most important centres: in the centre, the Departments of Huancayo and Huancavelica; and in the north, the region of Chicama. In such towns as Lima, Callao, Trujollo, Ariquipa, the chewing of coca leaves, although more or less isolated, is none the less practised. It is also to be noted that in Peru there is a greater coincidence of the areas in which coca is grown and in which it is chewed than in Bolivia.

OTHER FACTORS

Some interesting facts emerge if the incidence of the habit is examined in connexion with the altitude at which the coquero lives, the food supplies which are available to him and the kind of work from which he gains his livelihood. In so far as the correlation with altitude is concerned the theory has been held for a considerable number of years that when an Indian lives at a high altitude he must take up the habit to enable him to live and work, since it is said that the chewing of coca leaves has the result of lessening fatigue and counteracts the physical stress of living at high altitudes. More

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OPIUM PRODUCTION THROUGHOUT THE WORLD

(Continued from page 13)

(in addition to veterinary use) be explained by the fact that opium is freely used by the rich and poor alike on occasions of births, deaths and marriages, etc."[30] Figures on consumption in some of the producing States are given below. In the Annual Reports of the States, consumption is given in seers per 10,000. A seer is not much less than a kilogramme (1 seer=933.1 grams), and the 1925 Conference figures are equivalent respectively, to 6.0 and 4.5 kg. per 10,000. The maund, also used in statistics of the Indian States, is equal to 37.398 kilogrammes.[27]* These equivalents are only mentioned in case one wishes to study the original Reports; the figures below are converted to the metric system.

*There is a slight discrepancy, as the equivalent of the seer would appear to indicate 37.324 kg. for the maund.

Indian opium is generally dark and oily, and usually contains between 8 and 11 per cent morphine. There is only one producing area under the direct control of the Government of India. That is in the United Provinces. This production is reported in terms of opium of 90 per cent consistency. Formerly there was a little production in the Punjab Hills; 611 kg. in 1936. This production was suppressed after 1936, and the opium remaining in stock, 6,067 kg., was purchased in 1939 by the Ghazipur factory. The Indian States produce more

PRINCIPAL INDIAN STATES FOR OPIUM PRODUCTION, 1945

	Area under Cultivation (hectares)	Opium Production (kg.)	Opium Consumption Kg. per 10,000 inhabitants	Population of State (1941)
Gwalior	7,251	138,365	18.3	4,006,159
Indore	3,051	64,283	27.1	1,479,143
Tonk	1,259	28,810	30.1	353,687
Baroda	1,319	14,935	5.2	54,764
Dewas, J.B.	353	4,768	86.8	83,669
Kotah	2,145	74,516	1.3	777,398
Jhalawar	1,257	20,457	62.9	122,374
Partabgarh	1,333	28,684	11.4	91,967
Udaipur (Mewar)	1,245	20,468	25.1	1,926,698
Jaora	1,844	34,649	26.2	116,953
Sitamu	1,066	17,450	5.9	33,461
Ratlam	744	8,287	17.7	126,117
Piploda	265	4,245	20.1	11,528
Sailana	295	3,764	15.8	400,228

Official UN photos

Left: **Standardized Indian opium, black in colour.** ***Below:*** **Smuggled opium from India—flat cakes in oily paper.**

than two-thirds of the opium of India. Those States having the largest production are: Gwalior, Indore, Tonk, Baroda and Dewas, J.B.; and Kotah, Jhalawar, Partabgarh, and Udaipur (Mewar), in Rajputana; and Jaora, Sitamu, Ratlam, Piploda and Sailana in the Malwa Agency. Nearly all the production of the Indian States is in the area southwest of the United Provinces.

The production and export figures tabulated below are derived from the following sources: references 31, 14, 32, 27.

The consumption in British India was 5.8 kg. per 10,000 inhabitants in 1945, 5.9 in 1946. The consumption for all the Indian States collectively was 16.2 kg. per 10,000 inhabitants in 1945 as compared with 21.0 in 1944.[27]

	PRODUCTION (Kg.)				EXPORTS (Kg.)*	
Year	Total Area (hectares)	British India	Indian Stores	Total Production	for manufacturing	for smoking, etc.
1937	10,678	36,852	191,403	228,255	—	19,224
1938	11,069	48,367	202,861	251,228	—	23,161
1939	10,779	39,796	192,174	231,970	—	23,106
1940	10,882	38,207	189,870	228,077	7,258	36,453
1941	11,788	34,489	136,289	170,778	45,721	33,597
1942	19,776	105,428	237,251	342,679	93,213	3,766
1943	24,827	152,761	313,309	466,070	80,223	2,259
1944	37,625	213,346	312,273	525,619	20,684	65
1945	41,718	281,901	468,821	750,722	55,917	290
1946		165,326	274,266	439,592	104,178	25,271
1947		129,210 (Dominion)			117,756	700

* The figures for Exports from 1940 to 1945 are from the Annual Reports and are not quite complete, as small quantities exported to Nepal and to the French and Portuguese Settlements in India, and in 1940 and 1941 to Zanzibar and Pemba also, were not stated.

Nepal was formerly a large producer of opium, in days when thousands of kilogrammes of Indian and Nepali opium were purchased for shipment to China. There is no longer any opium from Nepal on the international market, and no official information is available in regard to production for domestic use. Current reference books (Encyclopaedia Britannica, 1946; Statesman's Year Book, 1945) list opium amongst the important agricultural products of Nepal, but it is not possible, for reasons mentioned above, to check the accuracy of these statements. A little Indian opium is exported to Nepal, but on the other hand the Annual Reports of India from 1935 to 1942 mentioned opium smuggling from Nepal. Nepal extends from tropical lowlands into the Himalayas. The opium is said to be a product of the tropical lowlands, and therefore is probably very similar to the opium produced in the adjacent United Provinces of India.

Bhutan. No information available.

SOUTHEASTERN ASIA

Burma, Thailand and Indo-China have in common that, although they are opium producers, they consume even more opium, chiefly by smoking. In the past, their government monopolies obtained large amounts for issuance to smokers, from Iran, Turkey and India. These supplies were cut off by the war. After the war, some exportation was resumed by the shipment of some 22 tons from India to Burma, nearly 22 tons from Iran to Thailand, and some 49 tons from Iran to Indo-China.[32, 24, 33] Turkey has made no exports to opium-smoking countries since 1941, and India has continued thus far to export to Burma only because Burma was administratively a part of India at the time the decision was made to end such exports to opium-smoking countries. Iran has recently declared it will make no more such exports.[34] In the future the addicts of Burma, Thailand and Indo-China may have to depend entirely on production in their

(Continued on next page)

own countries and in Yünnan (China). Under Japanese influence during the war local production was stimulated, especially in Indo-China. Production is in the wild mountainous areas where the four countries, Burma, Thailand, Indo-China and China, adjoin one another. There is enormous illicit traffic. These frontier areas are the world's paradise for smugglers: whenever opium is in relatively short supply in one of the four countries it is smuggled from the others. The tribespeople who produce the opium consume a large part of it themselves.

Burma. In Burma proper there is no production of opium, but there is large consumption. Before the war there were about 48,000 registered addicts. It is thought that less than half of these are now alive, but with more than 15,000 new addicts it is estimated that the number of addicts is now approximately 40,000. During and immediately after the war the addicts obtained their supplies almost entirely from illicit sources. The Government's intention is gradual suppression of the habit.[35] Some addicts are smokers and some are opium eaters. In 1938 and 1939, although more than 20,000 registered smokers could obtain opium legally, it was estimated that 12,000 to 15,000 or more additional smokers obtained supplies from illicit sources. Seizures have been enormous; in 1936 for Burma and the Shan States they amounted to more than 17 tons of raw and prepared opium, and in 1939, nearly 13 tons.[36] The producing areas of the Union of Burma are in the parts known under the 1948 Constitution as Kachin State and Shan State. Kachin State is the north-eastern part of the Union, and adjoins Yünnan. Approximately the northern half of the State is an area claimed by China. Production has been tolerated, though discouraged, in the "Triangle" between the Mali and Nmai Rivers, and in the Hukawng Valley; both in the Myitkyina District. Cultivation here was intended to be prohibited by 1943 but the war intervened. Under the Military Administration this cultivation was to be suppressed by May 1946. The independence of Burma and political turmoil have intervened. There has also been some production in the eastern part of the Bhamo District, the southern part of Kachin State. In 1946–47 illegal crops were destroyed in this area.[37] There has never been an estimate of production in Kachin State, unless the figure of 2,400 kg. in the reply of Burma to the Questionnaire* refers to this area. Production is chiefly in the eastern part of Shan State, which is bordered by Yünnan (China), Indo-China and Thailand. The Shan State comprises the former Federated Shan States. They were semi-independent; under British rule they were within the administrative area of Burma but managed by their own chiefs under the supervision of a special commissioner. The producing States are east of the Salween River, a rather inaccessible territory and in places subject to little or no administration. The recognized producing districts were Kokang, East Manglun and Kengtung. Production in 1946 for the Shan States seems to have been about 35 tons; before the war the reported production was 18 to 27 tons. It is possible that there is a further large production in unadministered Wa States. In 1929 the Superintendent of the Northern Shan States thought that the Wa States, in which there was then no control at all over opium, produced probably about 58,700 kg. annually.[61] There seems to be no information since that time as to whether the same area has remained unadministered and whether it still produces opium entirely without control or accounting. No opium has been exported from Burma to manufacturing countries. In the main, production is for addiction; but some is used for religious ceremonies, offered to the *nats* by Animists, particularly in Kachin State.

*"Reply to the Questionnaire" refers to the reply of a Government to the United Nations Questionnaire (despatched 14 April 1947) on the Limitation and Control of the Cultivation of the Opium Poppy and the Production of Raw Opium.

Production in the Shan States (in kilogrammes):[38]

	1937	1938	1939
Kengtung	1,640	4,100	4,369
East Manglun	3,123	4,377	4,436
Kokang	18,258	18,565	9,384
	23,021	27,042	18,189

Estimated production in 1946:

Kengtung	3,265 kg.[37]
Manglun	13,061[37a]*
Kokang	18,410 **
	34,736 kg. ***

* The reply refers to cultivation introduced into West Manglun by the Japanese. It is not quite clear whether the estimate applies to West Manglun only or to the whole of Manglun. The latter is assumed to be the case.

** No estimate is given in the reply for Kokang, but widespread cultivation in the area is mentioned, therefore an estimate corresponding to the 1937-38 production is taken.

*** Production in several other areas is mentioned,[37] though no figures are given. Hence the total may be taken as about 35 tons.

Thailand has considerable opium addiction. In 1938 there were nearly 60,000 known opium smokers, besides those drawing supplies from illicit sources. In that year the Government used 36 tons of raw opium in the manufacture of smoking opium, as well as 8.5 tons of prepared opium seized or returned for re-manufacture, and 2 tons of opium dross.[39] On the average from 1933 to 1938 the monopoly manufactured some 51 tons per year of prepared opium; the official figures show an average legal consumption of prepared opium, over a ten-year period, 1930 to 1939, of more than 32 tons per year.[31b] Seizures in 1938 amounted to 1,867 kg. of raw and prepared opium and dross; in 1936 more than 4.5 tons had been seized and it was considered probably safe to say that the quantities of illicit opium smuggled far exceeded the sales of monopoly opium. The illicit opium was said to come chiefly from China and the Shan States.[39] There have been no reports since 1939. Prior to 1938 the only production in the country was referred to as "clandestine." This production, in the wild and mountainous frontier region, was considered small and was subject to repressive action —destruction of the crop when found, seizure of opium, etc.—but it could not be suppressed. In 1938 a plan was started for bringing this production under Government control, and 571 kg. were produced under control. The controlled production of 1939–1940 was reported as 2,088 kg.[40] No more official information is available. The only recent information seems to be a declaration by the representative of the United States at the 1948 meeting of the Commission on Narcotic Drugs. He stated that the northern hill tribes in Siamese territory were said to produce 84,000 to 112,000 kg. of raw opium annually, of which only 30 per cent was distributed legally. The remainder was smuggled into Bankok, Burma and China.[23b]

French Indo-China is another country with much opium addiction. On the average over a period of ten years the monopoly manufactured nearly 47.5 tons of prepared (smoking) opium per year, and on the average nearly 47 tons per year were legally consumed.[31b] The greater part of the raw opium used for this manufacture was imported. Seizures were large; in 1937 and 1938 approximately a ton to a ton and a half; in 1936 nearly 7 tons said to be chiefly from Yünnan.[41, 42] During the war imports were cut off but domestic production expanded and in 1943 and 1944 some 46 to 47 tons of domestic opium were yearly used for the manufacture of smoking opium.[16] After the war, in 1948, some 49 tons were imported from Iran. (The showing of two such shipments in the reply of Iran is an error.) However, the present policy is to end the legal sale of opium in Indo-China by the end of 1953; to this end sales will be reduced by 20 per cent annually, the sales for 1944 being taken as a basis; and allowances to European smokers are to be ended by the end of 1949.[33] Production in Indo-China is in Upper Tonkin and Laos, in regions of rugged mountains and almost impenetrable forests. The poppy is grown by the Yaos and Meos tribes and occasionally by the Khas. The fields are small and scattered in the mountains; the yield is said to be rather low, only 3 to 4 kg. per hectare. This information is given in the reply to the Questionnaire on production of raw opium but the statistical table in the same reply shows an even lower

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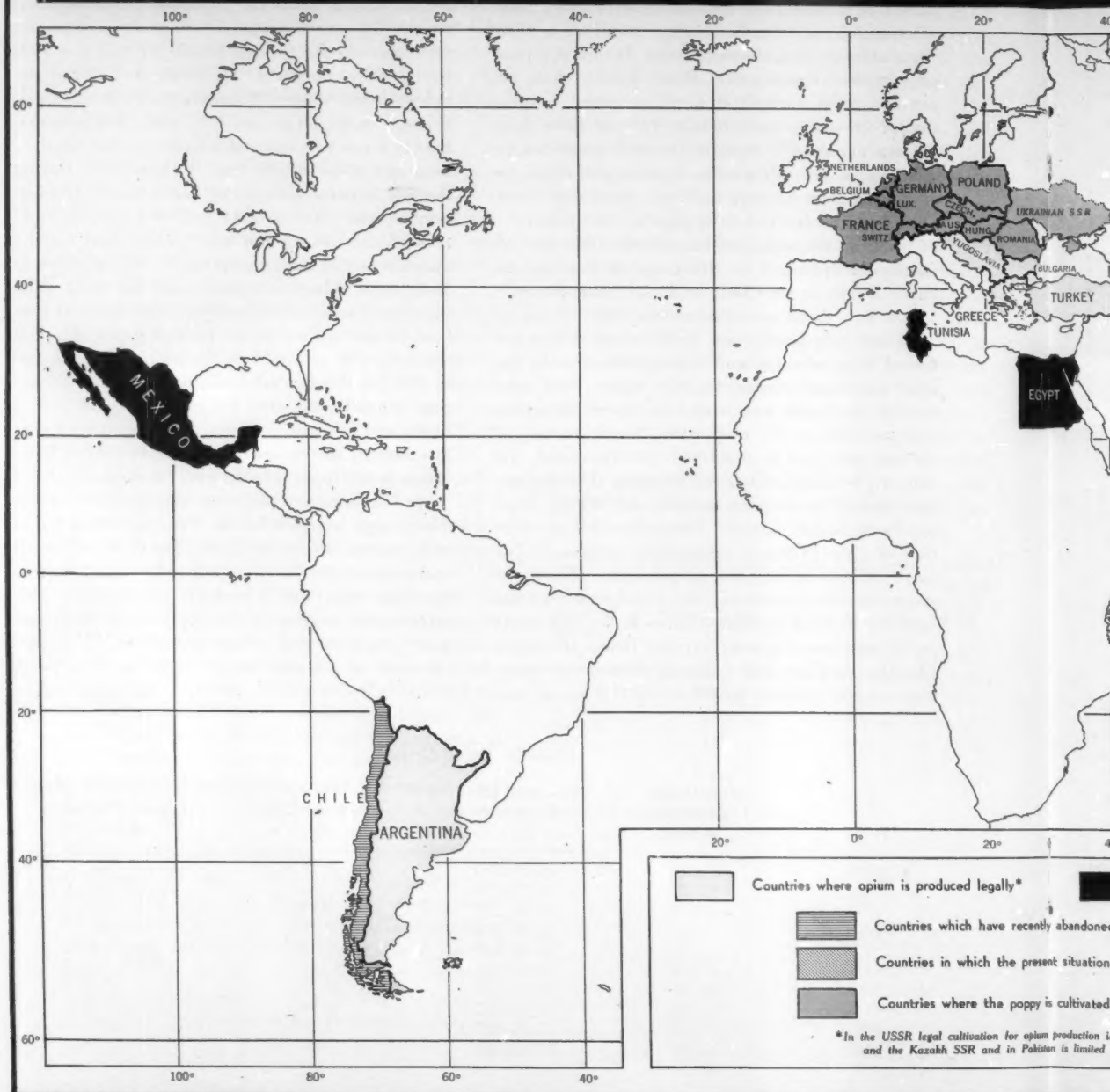
FRENCH INDO-CHINA

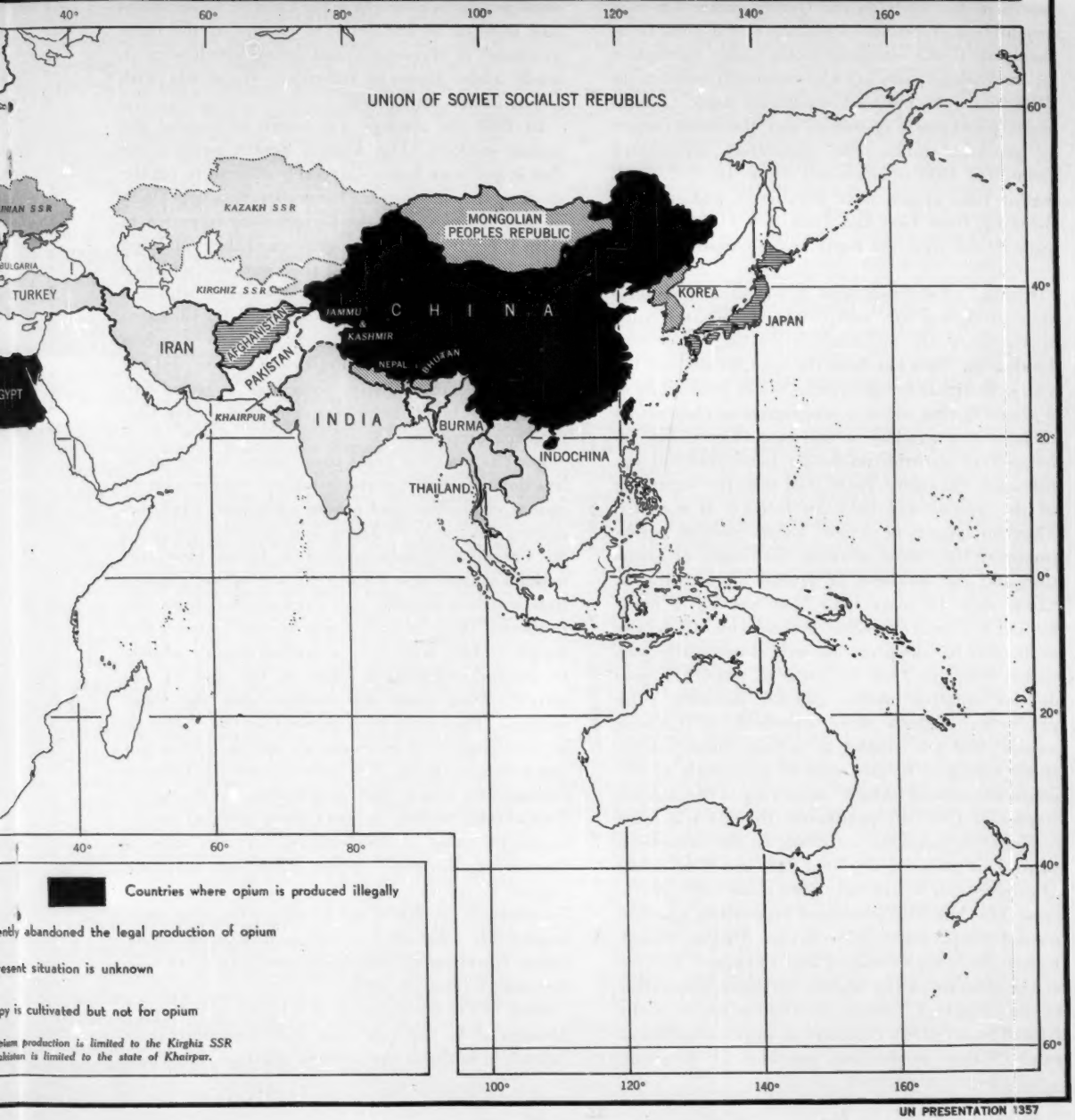
Year	Area Under Cultivation (Hectares)	Estimated Total Production (kg.)	USED FOR THE MANUFACTURE OF SMOKING OPIUM Domestic Opium (kg.)	Imported Opium (kg.)
1937	10,000	20/25,000	26,172	29,252
1938	10,000	20/25,000	11,601	65,548
1939	10,000	20/25,000	3,996	13,341
1940	10,000	20/25,000	9,325	66,059
1941	20,000	50/60,000	27,966	39,766
1942	20,000	50/60,000	21,484	—
1943	25,000	70/75,000	46,120	—
1944	25,000	70/75,000	46,940	—
1945	25,000	70/75,000	17,360	—
1946	20,000	50/60,000	—	—

WORLD CULTIVATION OF



MAP NO. 217 UNITED NATIONS
SEPTEMBER 1949

OF THE OPIUM POPPY



UN PRESENTATION 1357

estimate of yield; only some 2 to 3 kg. per hectare.[16] The tribesmen themselves consume a large part of the opium they produce and a really accurate determination of the total production is not possible. Before the war the official production meant the quantities purchased by the monopoly. The estimates in the reply to the Questionnaire for total production (reproduced below) would seem to be minimal, if the estimated areas under cultivation in the various years are approximately correct. In 1945 and 1946 political conditions made Government purchases impossible, and the manufacture of smoking opium was completely interrupted from May 1945 to December 1946. In 1947, 1,362 kg. of Laos opium were purchased, and in 1948, 5,437 kg. from Laos and Tonkin.[33] The figures on page 29 are from the reply to the Questionnaire.[16]

China. Production and non-medical consumption of opium are completely illegal in China, hence there are no statistics relating to present conditions. This has been the case for the last ten years. Statistics for the years 1934 to 1938 relate to a period during which a programme of elimination of permitted production was carried out. The intermediate statistics no longer have practical significance, but figures from at or near the beginning of the period still have an interest as maxima. They no longer, of course, reflect present conditions, but they show, roughly, the degree of addiction and the quantity of production existing in China only 15 years ago. They provide a background for understanding present conditions, the evaluation of which can be only superficially presented here. In 1934 the areas of permitted production totalled nearly 236,000 hectares. The production figures were obtained in Chinese ounces, and are subject to certain discrepancies, partly owing to belated returns and partly to different conversion factors. According to the Annual Report of 1937, the production in 1934 was some 5,855 metric tons, but according to the conversion equivalent earlier given, and that stated in books of reference, it would have been some 7,000 metric tons. This officially permitted production was confined to the provinces of Szechwan, Ningsia, Shensi, Kansu, Suiyüan, Kweichow and Yünnan.[43] In 1936 at the meeting of the Opium Advisory Committee of the League of Nations, the representative of the United States gave a summary of an investigation of total Chinese production, province by province, which led to the total production for 1935 being estimated at a minimum of 12,261 tons, up to a maximum of 18,000 tons. Eight other provinces were mentioned as producers, in addition to the seven of permitted production under the reduction programme.[44] It should be noted that this included some provinces over which the Chinese Government had little or no authority, in particular the three provinces of Manchuria, and Jehol, which were already under Japanese influence. Open war with Japan broke out in 1937.

In 1936 the attempt was begun to register the opium smokers. The Annual Report pointed out that it had been found extremely difficult to get the smokers to come forward for registration, especially as they realized that the Government intended to force them to take a cure, or, even if they qualified for official opium, to cut off their supplies within a few years. However, in 1937, the smokers who had been registered numbered 4,160,285.[43] China is an opium-consuming country and, even when legally producing vast quantities of opium, did not export any commercially. Some was smuggled out, but usually much more was smuggled in for Chinese consumption.

For the past ten years the Chinese Government has done its best toward complete suppression of opium production and opium addiction. Civil disorders, the war with Japan and the civil war with the Communists have interfered. In the provinces under Japanese rule during the war opium production was encouraged, and even forced upon the peasants. Drug addiction was spread amongst the people. There were over a million known addicts in Japanese-controlled areas at the end of the war.[43a] Then came the conflict with the Communists. They have been accused by the Nationalist Government of encouraging opium production and opium smoking. It is believed that the Chinese Communists claim that production in the areas they control is only to meet their medical needs, especially those of their armies. At any rate, if they try to suppress opium addiction, they are subject to the same handicaps as the Nationalist Government. It would not be surprising if in areas imperfectly controlled, or not controlled at all by either Government, conditions were to return to the same level as in 1934.

Such is the background of China's opium predicament. As the civil war still continues, it is difficult to evaluate the present situation, but some

notes will be offered indicating where illicit opium is most likely to be produced, and the extent of illicit cultivation. There is seldom any production in the great eastern provinces, the most densely populated regions, the home of Chinese civilization. Except when some local military authorities (Yünnan) may surreptitiously favour opium cultivation, it is not now a very open thing, but is located largely in mountainous, backward regions. In 1934–35 the permitted production was in China's great "Middle West"; and even then it was conceded that there was no production worth mentioning in the following twelve eastern provinces: Kwangsi, Kwangtung, Fukien, Chekiang, Kiangsi, Hupeh, Anhwei, Kiangsu, Honan, Shansi, Hopeh and Shantung.[44] In addition, as recently as May 1948, press reports indicated that most of Shensi—all but the northernmost part—had been cleared of opium production by the Nationalist governor (Over 34,000 hectares of poppy cultivation were destroyed in Shensi in 1947).[43] On the other hand, production was said to be rife in Sikang in 1948. The reply of China to the Questionnaire on Opium Production stated, "in some remote regions such as the mountainous boundaries between Shensi and Szechuan Provinces and on the larger and smaller Lian-Shan Mountains lying across Szechuan and Sikang Provinces where an uncivilized tribe called Yee-ming Race are crowded, the clandestine cultivation of opium is still prevalent."[45] This reply particularly mentioned successful crop substitution in Hupeh Province in 1932 to 1934; and also substitution of Indian corn, beans and cotton for opium in Kansu Province. There seems still to be tremendous production in Yünnan. The Shan States of southern Yünnan are a wild, mountainous, semi-independent district, inhabited by the same race as inhabits Laos in Indo-China and the Shan States of Burma. A considerable part of Yünnan's production is there. At the 1948 meeting of the Narcotics Commission, the representative of the United States referred to a report concerning 1,500 kg. of opium purchased by Thailand from illicit traffickers in Yünnan, and an additional 1,200 kg. which the traffickers attempted to smuggle from Yünnan to Thailand. This smuggling was apparently not all in one direction, as four months earlier, in the preceding year (1947), the Chinese Government had seized two tons of opium on an aeroplane coming from Thailand.[23c] The Annual Report of China for 1946 showed the destruction of 24,197 hectares of illicit poppy cultivation of which 20,000 were in Szechwan alone. No reports were made from Yünnan, Jehol, Kweichow or Ningsia in that year. The destruction of 20,000 hectares in Szechwan was so far from clearing up the situation that more than 293,000 hectares were destroyed in the same province in 1947. The total destruction of cultivation in 1947, according to the Report, covered 719,319 hectares, the greater part in the provinces of Szechwan, Chahar (64,413 hectares), Yünnan (44,520), Shensi (34,283), Shansi (8,240), Kweichow (6,780), Kansu (6,395) and Suiyüan (1,113). This destruction is so enormous that one fears there may be some mistake, as when, in the 1940 and 1941 Reports, decimal points were omitted that had been used in previous years in the hectares column. At any rate the continuance into 1947 of a very extensive illicit cultivation is shown. In 1947 the Permanent Central Opium Board stated, "China may still be well at the head of the list of opium-producing countries."[46] A general clearing-up of the situation must await the end of the civil war.

The USSR, before the last war, had restricted opium production to the autonomous republics of Kirghiz and Kazakstan. No Annual Reports have been received since 1937, and possibly Tannu-Tuva, formerly the northernmost part of Mongolia, may be classified as an opium-producing region. Kazakstan is the second largest Republic of the Soviet Union, but largely desert, and in practice the opium production allowed there is only in the region adjacent to the Kirghiz Republic and the Sinkiang border. The main producing region is called by the Russians Semirechye; it is south-eastward from Lake Balkhash, and is part of the territory sometimes called Russian Turkestan. This area is right in the heart of the continent. It is not so very far north and east from Kashmir and eastern Afghanistan and, as already mentioned, borders Sinkiang, sometimes called Chinese Turkestan. Russian writers mention particularly the outliers of the Tian-Shan, Tarbagatai and Alatau mountains, as places of cultivation. The last name is somewhat variously applied. The Terskei Alatau are south, the Kunghei and Trans-ili Alatau north of Lake Issyk-kul in the Kirghiz Republic. These are subsidiary ranges of the great Tian-Shan system. The Dzungarian Alatau border the gate of the Dzun-

(Continued on next page)

garian depression, north of the Tian-Shan. In Semirechye the Tian-Shan subspecies of poppy is chiefly grown. This is a dwarf race that barely comes above the knees of the cultivators, whereas the European varieties of *Papaver somniferum* probably average shoulder-high.[47]

The opium is used entirely for medical and manufacturing purposes. In general, the production just about meets the needs of the USSR; however, there are great variations in the amount produced. The reports showed a variation from more than 102 tons in 1930 (highest) down to some 28 tons in 1933 (lowest). The ten year average, 1929 to 1938, was some 70 tons. Both the area planted and that actually harvested were stated from 1929 to 1935; the averages were: planted, about 13,100 hectares; harvested, about 8,900 hectares.[25] The USSR sometimes imports and sometimes exports some opium. In 1946, a poor crop year in Semirechye, 19,500 kg. were imported from Yugoslavia.[15] In 1947 there were exported 7,400 kg.[48] The USSR is one of the chief countries of the world for the manufacture of morphine and other narcotic drugs from opium.

The last Annual Reports received showed the existence of a sizable illicit traffic in certain border regions, those adjoining Iran, Afghanistan and China. Over 3.8 tons were seized in 1934 and over 2 tons in 1937, the last year reported. No post-war information on this traffic is available.

The following figures show the pre-war areas and seizures,[25, 49] and both pre-war and post-war production and opium used for the manufacture of morphine.[25, 48]

	Area (hectares)	Production (Kg)	Opium used for manufacture of morphine (Kg)	Seizures (Kg)
1934	10,291	42,813	30,392	3,838
1935	10,024	94,645	41,076	2,257
1936	9,707	90,460	73,215	1,622
1937	10,000	85,280	75,150	2,131
1938		62,271	76,950	
1946		27,000	41,079	
1947		73,000	71,827	

NORTHEASTERN ASIA

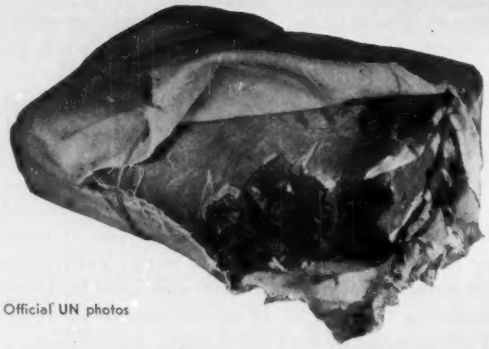
Mongolian People's Republic. No recent or official information is available. It is only known that opium was produced here, and some of it was sold to the Japanese during the period that Japan controlled Manchuria.

Korea is at present divided into two separate administrative units: South Korea and North Korea. The greater part of the population is in South Korea, but the greater part, about 85 per cent, of the opium production was in North Korea. No post-war information is available, however, concerning production in North Korea. Korea under the Japanese was an opium exporting country. The exports went to non-manufacturing countries—Kwantung Leased Territory (in China), Manchuria and Formosa—for addiction purposes, i.e., opium smoking. The Koreans themselves are not addicted to opium smoking, but there is some drug addiction among them, and also "quasi-medical" opium eating.[50] From 1937 to 1944 there was an average production of 34.5 tons yearly and an average exportation from 1937 to 1943 of some 33 tons. The small difference would not seem sufficient to account for the drugs manufactured within Korea by the Japanese. However, the Seoul factory used an ammonium chloride process for obtaining morphine, which left some 4 per cent morphine in the opium residue. This residue was then mixed with good opium and sold to Formosa and Manchuria. There was much illicit traffic in the country. Opium was grown secretly in the more remote, mountainous areas, and many of the opium farmers diverted part of their crop to illicit channels. In 1944 over 5 tons of opium were confiscated by the authorities.[50] With the occupation at the end of the war, opium production was forbidden in South Korea (the American Zone). The

Official UN photo

Korean opium—of rubbery consistence when fresh.

Japanese opium—very coarse and black, but high in morphine content (over 15 per cent).



Official UN photos

prohibition, at last accounts, was not very successful. The Annual Report for 1946 noted: "Many of the farmers are illiterate and may not have been aware of the new prohibition. It is known that considerable opium was produced; however, there is no way to estimate how much it may have been, or what disposition was made of it. The most of it was perhaps consumed in South Korea."[51] The Report indicated that the authorities had had little time to enforce prohibition of poppy cultivation, and most of the production was in remote and mountainous areas. The reply to the Questionnaire indicates that prohibition of poppy culture may not be a permanent policy for Korea. "The economic stability of Korea depends greatly upon her exportable commodities . . . opium is one of the comparatively few items that can be exported. The land upon which poppy is grown is not very adaptable for food crops. The "family system" of farming practised here provides an abundance of inexpensive labour. However, until such time as Korea may be designated an opium-producing country, farmers will be advised of the prohibition and they will be urged to grow millet, beans and potatoes on the land."[16] The desires and policy of the new Korean Government are not yet known.

PRODUCTION FOR ALL KOREA UNDER THE JAPANESE[16, 62]

Year	Area (hectares)	Production (Kg)	Exports (Kg)
1937	2,556	27,608	28,711[52a]
1938	5,007	35,683[52a]	27,839 "
1939	6,590	26,702	31,477 "
1940	7,293	32,929	28,314[52]
1941	8,432	50,735	48,590"
1942	6,665	25,971	36,010"
1943	7,503	40,433[20]	30,572 "
1944	7,624	36,178	Not available
Average	6,459	34,530	33,073

PRODUCTION IN SOUTH AND NORTH KOREA IN 1943[20]

	Area (hectares)	Opium collected (kilogrammes)
South Korea	1,545	5,698
North Korea	5,959	34,735
Total	7,504	40,433

Japan has almost ceased to be an opium-producing country in any sense. Cultivation of the poppy is prohibited under the occupation, and there were only four cases of illicit cultivation discovered in 1947. The individuals were prosecuted and fined although they claimed they were not aware of the prohibition.[53] From 1937 to 1943, about 20.4 tons of opium were produced yearly, on the average. The entire amount was used for the manufacture of drugs and medicinal opium. Japanese pharmaceutical companies also processed poppy chaff into pharmaceutical extracts and powders, but did not extract pure morphine or other alkaloids from it.[16] Opium production was only on the island of Honshu, chiefly near Osaka and Wakayama. Because of Japan's violations of international narcotic laws, before and during the war, it is intended that Japanese production of narcotics shall not be permitted. The following figures of opium production are from the reply made to the Questionnaire by U.S. occupation authorities:[16]

Year	Area (hectares)	(Kg) Production
1937	2,036	21,213
1938	1,572	16,455
1939	1,481	27,203
1940	1,310	24,435
1941	1,159	19,411
1942	1,931	16,242
1943	1,512	17,970
1944	1,076	9,650
1945	1,885	9,100
1946	nil	nil

(Continued on next page)

Mexico has a problem of illegal production, which apparently only began about 1937. The Annual Report of 1938 mentions the discovery of a planting of opium poppies in Sonora. In 1939 there were a number of seizures of opium which probably had a domestic origin. In 1940 the discovery of three plantings in Sonora covering 25 hectares was mentioned; in 1942 plantings were discovered in Sinaloa, and in 1943 the opium seized was said to have its origin in Sonora, Sinaloa, Durango and Lower California. In 1944 the destruction of 276 planted areas covering 48 hectares, in Sonora and Sinaloa, was noted in the Annual Report.[54] The illicit cultivation seems to have been started, in part at least, to supply resident Chinese with local opium. But with the war the ordinary supply sources of illicit opium were cut off, and gangsters and illicit traffickers of the United States turned to Mexico for supplies, and became the principal customers. The actual producers are mostly Indian farmers who grow small plots of poppies. In 1944 the plantings were chiefly in river valleys, but by 1948, in consequence of the Governmental campaigns against opium cultivation, they had moved into places such as canyons, ravines and mountain ridges, inaccessible by any ordinary roads. The opium is seldom smuggled in its natural raw state. Either it is converted into smoking opium—generally highly adulterated—and smuggled in that form, or the morphine is extracted and converted to heroin in clandestine laboratories. Usually the Mexicans do not smuggle either product, but sell to U.S. traffickers in Mexico. When the United Nations took up the international narcotic problems, Mexican opium production was a grave problem to the United States Narcotics Administration. The matter was brought up at the first session of the Commission on Narcotic Drugs, in 1946. The Annual Report of Mexico for that year referred to illicit cultivation in Lower California, Sonora, Chihuahua, Sinaloa and Durango. The representative of Mexico to the Narcotics Commission added a reference to Jalisco.[55] Cultivation has probably spread to Nayarit and Guerrero also.[56] At the second session of the Commission on Narcotic Drugs the representative of the United States made a statement based on an aerial survey by Mexican officials and a representative of the United States. It was estimated that the poppy fields then numbered close to 10,000, averaging one-half hectare or more per field. The total area under poppy cultivation was estimated at between 4,000 and 5,000 hectares, producing from 32 to 40 metric tons of opium.[57] At the proposal of the United States' representative, the Commission requested the Economic and Social Council that the Mexican Government be asked to intensify its efforts to suppress opium production, and this has been done. At the following meeting the Mexican campaigns against opium cultivation were praised. The Annual Reports of Mexico for 1947 and 1948 show the destruction of poppy plants on comparatively small areas. However, the success of the campaigns cannot be solely judged by this. The campaigns of destruction of the plants, and judicial penalties against the violators, induce many farmers besides those directly affected to abandon opium culture. The remaining plantings are driven deep into the mountains, as noted in the Annual Report of 1948. Moreover, opium from some other countries is now available in the illicit traffic. For these reasons the illicit production in Mexico has doubtless declined greatly, but it is not possible to give an up-to-date estimate. The last two Annual Reports do not correspond exactly to the calendar years, as the campaigns are carried on through the winter. The Report for 1947 mentions the destruction of 663 poppy fields, covering some 135 hectares, and the confiscation of 99 kg. of raw opium. The Report for 1948 mentions the destruction of 666 poppy fields, covering some 270 hectares, and the seizures of about 99 kg. of opium.[54]

SOUTH AMERICA

Argentina has experimented with the production of opium in recent years without much success, but few details are available. In 1945 poppies were cultivated on 120 hectares and 15 kg. of opium produced. The equivalent of 60 kg. of morphine was produced, but chiefly obtained from "poppy straw". In 1946 there was a crop failure, according to the Annual Report. The figures of the Permanent Central Opium Board show 15 kg. opium produced, but this is probably the production assigned

by the Annual Report to the preceding year. The report of the Permanent Central Opium Board gives a figure of 2,000 kg. produced in Argentina in 1947, but this seems to be a clerical error.

Chile experimented with opium production for a number of years, adding some experimentation on the extraction of morphine from the dried poppy capsules in 1943. The quantity of opium produced was never large and it was generally of poor quality. The experiments were abandoned in 1946. The following figures are from the reply to the Questionnaire and Annual Reports[37, 58] as submitted by the Chilean Government:

Year	Area (hectares)	Opium produced (Kg)	Percentage of morphine
1936	4	13	11.74
1937	7	16.6	18
1938	6	39.3	6.25
1939		nil	
1940	38	39	
1941	70	275.67	5.66
1942	100	343	6.5
1943	100	80*	10.7
1944	105	80*	
1945	no opium,	25,990 Kg poppy capsules	
1946	75*	14*	

*These figures are from the reply to the Questionnaire. The Annual Report for 1943 states the production in late 1942 of 1,048 Kg. latex of 1 to 9% morphine, of which 705 kg were used to manufacture morphine and the remainder to produce the 80 kg opium. The Annual Report for 1944 states the production in late 1943 of 39.48 kg raw opium, 140 kg of latex, and 25 tons dried poppy capsules. The Annual Report for 1946 states that 46 kg of latex were obtained and then dried, and that only 60 hectares were cultivated.

CONCLUSIONS

The general survey presented in this article has been confined to the countries of opium production. No attempt was made to consider the opium problem as a whole with all its implications: practically nothing has been said about the beneficient use of opium in the manufacture of narcotic drugs needed to meet medical requirements in all parts of the world; nor has anything been said about the problems of opium addiction in various countries which do not produce opium. These and other questions constitute what is known as the "opium problem." They will be examined in special surveys to be published in later issues of the *Bulletin on Narcotics*.

Even within the limits of this article one fact above all emerges: opium, its production and use, is a world-wide problem. The limitation of its production and the control of its distribution so that its use in all countries and territories of the world may be restricted solely to medical and scientific needs are still unsolved problems. The solution of the "opium problem," as the experience in the field of manufactured drugs has conclusively shown, is possible only by a co-operative effort of all Governments, bound by an international treaty concluded under the auspices of the United Nations and entrusting to this organization the supervision of its application.

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COMMISSION OF ENQUIRY ON THE COCA LEAF

(Continued from page 25)

recently also a suggestion has been made that the Andean Indian has a special physiological constitution which would explain the habit.

On the other hand, those authorities who deny any relationship between coca leaf chewing and altitude make the following points. In other parts of the world where men live and work at comparable altitudes and even higher ones, notably in Tibet, the coca leaf is not chewed nor is there recourse to any analogous stimulant. Again, although the habit is widespread in other parts of the Peruvian Sierras, it is not universal, and the case of the Tupe district in the Department of Lima has been cited, where at a height of 3,000 metres an ethnic group of Indians live who do not chew coca. In addition, examples have been found where as a result of education certain groups of Indians which at one time practised the habit have now given it up; and also, in the mountainous regions of Ecuador where the practice was formerly quite common it has now almost disappeared. A further point is that among the white inhabitants of Andean areas, or among those who live in the Sierras, the habit is rarely found, while among mestizos who live at high altitudes the habit is much less widespread proportionately than in Indian populations. As regards the theory that the Andean Indian has a particular physiological constitution which makes it necessary for him to chew coca, it is a fact that there are Indians of the same ethnic groups living in the same region or in regions having similar climates who do not chew coca leaves. It is also argued that if Andean Indians had developed a peculiar physiological constitution it would be reasonable to suppose that this constitution would have become completely adapted to the conditions under which they live, and that consequently the chewing of coca leaves would not be necessary.

It would seem therefore that mere altitude cannot be held to lead directly to the habit of chewing. But as a general rule, as the altitude increases the economic poverty of the region increases also and consequently lessens the possibility of the inhabitants obtaining an adequate food supply. In the valley of Urubamba, for example, it has been shown that the frequency of the habit increases as the altitude rises, that is to say as the agricultural fertility of the valley and with it the possibility of food production diminishes. Thus the correlative factor of food shortage should be inserted in any relationship between altitude and chewing.

It has often been stated that the coca leaf is chewed to kill hunger. The general subsistence level is very low indeed in Peru and is noteworthy that the consumption of food *per capita* is least in the sierras, where the habit is most prevalent, while on the coast, while still very low, it is somewhat higher, and here coqueros are found less frequently. It has recently been stated that the Andean Indian does not on an average receive more than 2,000 calories per working day, and an official publication of the Peruvian Ministry of Agriculture shows that the calory deficiency per individual varies between 500 and 2,000 per working day. The theory that calory deficiency explains the recourse to alcohol and coca has been succintly put by Gutierrez-Noriega: "A man will start to chew coca to appease his hunger, and will eventually acquire an abnormal alimentary satisfaction produced by chewing . . . at the beginning he chews because he has too little to eat; then he eats too little because he chews coca."

Certain writers have attempted to establish a relationship between chewing and the performance of certain types of work, and have stated that it is necessary for heavy manual work, especially that done by Indians in the mines. It has also been said that under the action of coca the indigenous worker works better and faster. These views are not, however, generally accepted, and it may be mentioned that there are Indian miners who do not chew coca leaves, although they are not very numerous. That the use of coca improves the quantity and quality of the workers' output has also been denied by statements showing that the output is less and the incidence of accidents is greater among the workers who practice the habit. In this connexion three factories near Cusco may be mentioned. In that at Lucre 90 per cent of the workers chew coca leaves whilst of those at Huascar and Estrella only 5 to 10 per cent have the habit, and it is stated that the work is worse at the Lucre factory than at the two others.

In so far as Bolivia is concerned it may be said

(Continued on next page)

as a broad generalization that the social condition of the Indian in the Andean area of Bolivia is analogous to that of the Peruvian Indian. Both populations are composed largely of the ethnic groups Quechua and Aymara, and the historical development of the social and economic status in which the Indians of the two countries now find themselves has been approximately the same. It should perhaps be mentioned that legislation to protect the indigenous population is much more complete in Peru than in Bolivia but as far as the chewing of the coca leaf is concerned the elements of the problem do not differ greatly.

What has been said about Peru may therefore be considered to apply in general terms to Bolivia also. In Bolivia the coca leaf is chewed over a very wide area and in general it may be said that the habit prevails everywhere in the Altiplano. The principal centres of consumption are in the Departments of La Paz, Orouro and Potosí. In the capitals of the last two, the habit is also prevalent and it should be noted that it is in these two departments that the large mining centres are to be found. In 1948 the Government of Bolivia informed the Secretary-General of the United Nations that coca leaves were consumed in the Altiplano and the mines and that 99 per cent of the coqueros were Indians. During the period 1937–1946 the greatest quantity of coca leaves grown for chewing was 6,733,163 kgs. (1937) and the least 1,619,951 kgs. (1943).

The living conditions of the Indian workers in Bolivia were studied in 1931 by Roberto Capriles, an official of the Ministry of Labour, and Gaston Arduz, the Director-General of Social Enquiries. In their report they stated that the conditions of work in the mines, where the workers are almost exclusively Indian, "although being improved, are still very low, lower than in industry . . . in agriculture the feeding of the indigenous worker is affected by the use of coca . . . it is very poor".

These then, in brief outline, are the major factors which influence the two problems which the Comission of Enquiry is investigating, and it is clear that the eventual successful application of a joint solution to these two problems must depend in great measure on the finding of solutions to a number of closely related economic and social questions. That a solution must be found will be readily appreciated if it is remembered that apart from its direct effect on the inhabitants of the countries where the practice is prevalent, the chewing of the coca leaf has also a world-wide significance. The leaves which go to satisfy the appetites of the coqueros form also the raw material from which the dangerous drug cocaine is produced; and all the experience in the international control of narcotics shows that the production of a drug cannot be effectively controlled throughout the world unless the production of the raw material from which it is made is also subject to some measure of control.

INTERNATIONAL ACTION

As a conclusion to this article it may be of interest to summarize the previous international concern over problems of long standing and to record briefly the circumstances in which the Commission of Enquiry has come into being.

The limitation of the production of the coca leaf, as well as that of opium and other raw materials for the manufacture of narcotics, was discussed during the International Opium Conference held at Geneva from November 1924 to February 1925. The Conference made no pronouncements as to the nature of the effects of chewing the coca leaf but considered that the limitation of its production could not at that time be achieved. Peru was not represented at this Conference but the representative of Bolivia informed it that Bolivia produced about 5,000,000 kgs. of coca leaf annually, that 342,606 kgs. had been exported in 1923, that the quantity of coca consumed by the Indians was restricted, that the consumption could not be considered harmful and that cocaine was not manufactured in Bolivia.

In 1931 the question of the limitation of the production of the coca leaf was again raised during the general discussion at the Conference for the Limitation of the Manufacture of Narcotic Drugs. It was, however, decided that such limitation could not be discussed in view of the Conference's terms of reference.

The Assembly of the League of Nations recognized the necessity for achieving a limitation of the production of the raw materials used in the manufacture of narcotics, and in September 1931 requested its Advisory Committee on the Traffic in Opium and Other Dangerous Drugs to prepare questionnaires on the problem for dispatch to Governments. The questionnaire concerned with the coca leaf was duly dispatched in December 1933 to

the Governments of the countries concerned. As a result of the studies made by the Advisory Committee on the information thus received it was decided in 1936 to continue the studies on the problem but to defer the question of the control of production until a later date. The studies on the problem were continued until 1940 when the Second World War made it necessary to discontinue them temporarily.

After the end of the war the Commission on Narcotic Drugs of the Economic and Social Council of the United Nations assumed the functions which had previously been exercised by the Advisory Committee on the Traffic in Opium and Other Dangerous Drugs of the League of Nations, and in November 1946 decided that it would be useful if a new questionnaire on the coca leaf were to be sent to Governments to enable the latest information and developments to be co-ordinated on an international level. This questionnaire was accordingly dispatched in 1947 and the Commission on Narcotic Drugs examined the information supplied by Governments during its session in May 1948.

Meanwhile, in April 1947, the Government of Peru had requested that a United Nations Commission of Enquiry should be set up to study the effects of the use of the coca leaf on the population of certain regions in South America. The General Assembly of the United Nations considered this request in November 1947 and "without wishing to prejudge the issue in any way" invited the Economic and Social Council "to consider it with all the urgency that it deserves". In March 1948 the Council adopted a resolution approving in principle the dispatch of a Commission of Enquiry to Peru and requesting the Secretary-General of the United Nations to prepare the necessary organizational plans. The Council approved the plans in August 1948 and the General Assembly in November 1948 appropriated the sum of $17,000 for the use of the Commission of Enquiry. The Secretary-General's plans for the Commission provided for a membership of four international experts. In June 1949 the Commission on Narcotic Drugs accordingly elected a medical team consisting of Dr. M. A. Granier-Doyeux, Professor of Pharmacology at the Central University of Venezuela, and Dr. F. Verzar, Professor of Physiology at the Physiological Institute at Basle, and a non-medical team composed of Mr. H. B. Fonda, Senior Vice-President of the Burroughs-Wellcome Company, Incorporated, of New York, and Mr. Razet, Inspector-General of the Ministry of Agriculture, former Director of the French Narcotics Bureau. These experts are now at work in the field assisted by four members of the United Nations Secretariat.

In April 1949 the Secretary-General received a request from the Government of Bolivia that the Commission of Enquiry should extend its activities to that country, a request duly considered by the Commission on Narcotic Drugs in June 1949. At that time the Commission also re-examined the Secretary-General's plans for the Commission of Enquiry in the light of the financial appropriation which the General Assembly had made for it in the previous November, and decided that the $17,000 provided would hardly be sufficient to allow the Commission of Enquiry to spend enough time in the field to make the thorough study for which its terms of reference provided. As a result of these two new factors in the situation, the matter was again referred to the Economic and Social Council and was considered by that organ in July during its ninth session this summer. The Council agreed with the views of the Commission on Narcotic Drugs as regards the desirability of extending the inquiry to Bolivia and the necessity for making more funds available, and on 23 July, accordingly, adopted a resolution to this effect, the text of which is to be found in the Official Section (Page 52).

DETERMINING THE ORIGIN OF OPIUM

(Continued from page 19)

regular particles with few rods compared to the Indian, but many more than in Turkish opium.

Colorimetric determination of "porphyroxine-meconidine" (Procedure 11). A lime extract (solution) of one gramme of the opium is obtained, and extracted with ether in a continuous extractor. The ether solution is then poured into an evaporating dish (it would be well here to rinse out the receiving flask with a little methyl alcohol) and the solvent evaporated off. The alkaloids extracted are then treated with diluted hydrochloric acid and the solution heated. A beautiful purplish-red colour develops. The amount of red colour due to the "porphyroxine-meconidine" from one gramme opium in five mils aqueous solution is then read in the 1/16 inch cell of the Lovibond tintometer. Indian opiums show by far the highest values, although Turkish opiums also contain a fair proportion of the alkaloid in question. Iranian opiums thus far tested are distinguished by their very small amount of this alkaloid.

Codeine determination (Procedure 12). A lime extract (solution) of two grammes of the opium is obtained, and extracted with ether in a continuous extractor. The ether solution is then poured into an exaporating dish (it is well here also to rinse out the flask with a little methyl alcohol) and the solvent evaporated off. The alkaloids are taken up with five per cent acetic acid and the solution transferred to a separatory funnel. The solution is buffered with sodium acetate and the papaverine, thebaine and "porphyroxine-meconidine" shaken out with carbon tetrachloride, using a wash of acetic acid solution buffered with sodium acetate. The solution is then made strongly alkaline and the codeine extracted with carbon tetrachloride, which is washed with alkali solution and then with water. The washed and filtered solvent is evaporated. The dry residue of codeine (with more or less cryptopine) is dissolved in a little methyl alcohol and titrated with n/50 sulfuric acid to the end-point with methyl red indicator, boiled distilled water being added. The results show two kinds of opium with respect to codeine, Turkish and Yugoslav opiums containing 0.7 to 1.6 per cent while the opiums of India, Iran and Afghanistan contain twice as much, usually ranging from about 2.0 to about 3.8 per cent by this method. Observations on the amount of cryptopine can be made by colour tests, both for the cryptopine carried along by the carbon tetrachloride toward the end of the thebaine extraction, and for the cryptopine remaining with the codeine. Indian opiums are highest in cryptopine.

Morphine determination. The assay of the United States Pharmacopoeia has been used as a basis for

Chemical Analysis of Opium

Grinding up the opium with lime and water in the laboratory.

comparisons. It is hoped that an accurate extractive method can soon be worked out, but all the data available now are in terms of the pharmacopoeial precipitation methods.

Other determinations. The determination of the fats or oils soluble in petroleum ether can easily be made by extracting the air-dried opium in a Sochlet apparatus. A result in excess of 9 per cent suggests Indian opium. The opium can then be extracted for four or five hours with chloroform, and the solution obtained used to determine narcotine, papaverine and thebaine, with some observation of the amount of cryptopine (Procedures 4 to 8). Two grammes opium are used for these extractions.

An alternative way of determining these alkaloids is by Anneler's method.[17] This gives very good results for narcotine and thebaine, and is satisfactory for papaverine if the purification is omitted. The Anneler method is not satisfactory for codeine.

If an ash determination is desired it is made in the usual way.

OPIUM TYPES REFERABLE TO CERTAIN COUNTRIES

The pattern of three different types of opium may be indicated as follows:

	TURKISH	IRANIAN	INDIAN
Microscopic	few particles, no rods	highly cryst., some rods	highly cryst., many rods
Porphyroxine	medium	low	high
Codeine	low	high	high
Morphine	medium high	medium	medium low

Actual figures for certain samples were these:

	TURKISH		IRANIAN	INDIAN	
	(1)	(2)		(1)	(2)
Porphyroxine	9.5 R	11.7 R	2.9 R	19.2 R	16.8 R
Codeine	0.9 %	1.15 %	2.16 %	2.63 %	3.2 %
Morphine	12.6 %	13.0 %	11.3 %	10.5 %	8.2 %

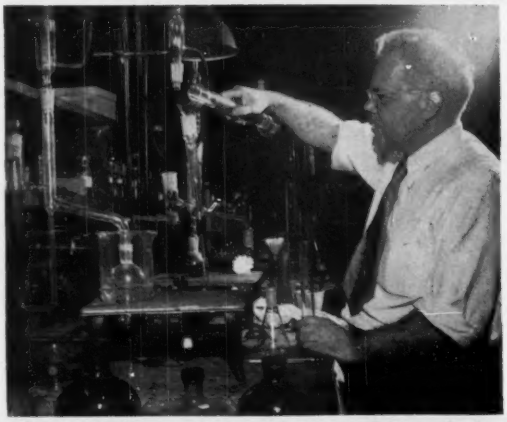
The inclusion of other determinations would serve to define the types in greater detail, but the figures cited are enough to show some of the numerical differences and resemblances. Of course, there may be other types from the same countries, too. In fact, it is known, for example, that Turkey produces some "soft" opium that is high in codeine. Present typing has been based chiefly on the opiums lawfully exported by the government monopolies; and minor types have not yet been studied. That will have to be done later, as some minor types are quite likely to be found in the illicit traffic. The present figures are sufficient to prove that opium types do exist and can be definitely referred to their respective countries of origin.

SEIZURES

The methods of determining the origin of opium are intended to be applied to seizures, to samples of opium in the illicit traffic. This is the purpose of the whole investigation. It is necessary, therefore, to inquire what is the relation, if any, between illicit opium and that legally exported.

The opium legally exported for manufacturing purposes is standardized by the government monopolies of the exporting countries. The opiums from different areas or provinces within the coun-

Official UN photos



Filling the continuous extractor with opium solution and ether.

Apparatus for continuous extraction and, right, Sochlet extraction.

try are mixed together to produce a fairly uniform opium which does not vary much in general characteristics from one sample to another, or even from one year to another. At the same time it does differ from the standardized opium of other countries.

In the illicit traffic anything is possible. It would be a mistake to think that all illicit opium is necessarily at the other extreme, completely non-standardized. Some of it is, in fact, standardized government monopoly opium which has somehow been diverted into the illicit traffic. Some is opium originally intended for consumption only within the producing country—and standardized for that purpose—but smuggled out. Such is, or was, the stick opium of Iran. Some is semi-standardized, or standardized for a particular area, such as one of the Indian States. Much illicit opium, of course, is diverted directly from the farm, or even produced illicitly. Also, illicit opium may be of some abnormally poor quality, or it may be adulterated in any degree. Even fake opium has been found, made in part from opium residues, but practically valueless to an unfortunate purchaser.

The studies thus far made on legal, standardized opiums can, therefore, be applied to some of the opium in the illicit traffic. As yet, very little study has been made of known samples of opium as it comes from the farm. But such opium, even in the illicit traffic, will most often—though by no means always—correspond more or less closely to the average for the country as represented by the standardized government monopoly opium. Because of the possibility of adulteration, attention should be given to the *ratios* between the various alkaloids and other substances quantitatively determined, especially if the morphine content is low.

In a seizure case of the United States, two different kinds of opium which appeared to be government monopoly opium were present. The fact that the same smuggling case involved monopoly opium of two different countries indicates that the diversion probably took place after legitimate export, and occurred in some other country, possibly from military stocks. The probability that in this particular case the countries of origin were not to blame, does not destroy the interest of identification of the origin by chemical means.

That these opiums originated in India and Turkey respectively was nearly obvious anyway from their appearance, but the quantitative chemical

SEIZURES OF STANDARDIZED OPIUMS

Appearance	Cubical, oily blocks	Rounded flat cakes coated with chaff
Colour	black	brown
Texture	smooth	granular
Microscopic	rods, very numerous	small irregular particles, rather few
Porphyroxine	24.3 R	12.1 R
Codeine	2.25%	1.42%
Morphine	8.8%	12.6%
Fats	9.7%	8.0%

analyses at least insure against the possibility, however remote it may be, that some kind of opium might be deliberately given a superficial appearance in imitation of some other kind.

Another seizure by the United States some months ago consisted of flat, rectangular cakes of opium, each cake marked off in smaller rectangles like cooking chocolate. This particular form had never been seen before by any of the U.S. Customs or Narcotics agents or officials. The vessel on which it was smuggled had come from western Europe. Analysis showed the following:

"Chocolate-cake" Opium

Microscopic—small irregular particles, few
"Porphyroxine-meconidine" colour value—12.8
Codeine content—1.27%
Morphine content—13.5%
Fats soluble in petroleum ether—9.8%

Evidently this opium was Turkish, or possibly Macedonian. The microscopic test and codeine content are fairly decisive. Although the fats are high, we do not know much about the variation of Turkish opiums in fats, and this characteristic could be partly artificial.

Except for such a well known form as the stick opium of Iran, most of the illicit opium is in rounded or rather shapeless lumps, sometimes wrapped in oiled paper and sometimes in poppy leaf. As already mentioned, little has been done as yet toward the study of known samples direct from the farms of producing countries. Such study is very necessary, as some areas that are particularly likely to smuggle opium produce their own distinctive types which do not contribute much to the characteristics of the usual export opium. Nevertheless, the examination of seizures should not wait upon the completion of such a study, but should be carried on simultaneously. If a seizure does not reasonably well match a known kind in characteristics,

the analyst must simply admit that he cannot yet tell where it came from. Of course, it will always be possible to find some minor differences between any two samples; but a major discrepancy, particularly in a characteristic primarily relied on for classification, may indicate a new type and cannot be ignored.

An example of matching a seizure with opium of known origin was included as Annex I in document E/CN.7/117/Add.2. Twelve points were noted. Although there were a couple of minor discrepancies, the close correspondence on the whole and in regard to the major determinations was very striking. Probably if more previously-analyzed authentic samples had been available, an even closer match might have been found, as there is no doubt at all of the correctness of the conclusion in this particular case.

The examination of a seizure sample should begin with consideration of its general appearance, colour, texture, etc. Collateral information as to the circumstances of the seizure, statements of defendants, etc., should be available. Microscopic examination takes only a few minutes. Perhaps some opinion of origin can be formed at this stage, but if the case is at all important, determination of at least the "porphyroxine-meconidine" colour, the codeine content and the morphine content, should be made. If the results correspond closely to a known type and are in accord with the known circumstances, the origin may be considered as established. When any doubt still remains, additional determinations can be made; and, above all, an effort made to *match* the seizure opium with an opium of known origin. For this purpose good supplies of authentic samples are vitally necessary to the experts who pursue these inquiries for their Governments.

PROBLEMS

Certain questions are often raised in connexion with this project, such as:

What could be done if the illicit traffickers mixed different kinds of opium to conceal the origin?

Can prepared opium be distinguished according to country of origin?

What kind of opium would result if the seeds of a variety characteristic of one country were grown in another country?

Does the type of opium produced depend primarily upon poppy variety, on soil and climate, or on other factors?

Such questions are beyond our power to answer definitely at present, especially as so little has been done in the study of opium direct from the farms. Moreover, they are largely hypothetical and may never have to be answered for practical purposes. However, some tentative opinions can be mentioned.

The mixing of different kinds of raw opium is unlikely to be practised often, if ever, by the illicit dealers. They are not necessarily concerned with trying to hide the country of origin, but rather to hide their personal guilt. For a particular gang to turn out a distinctive product would be very foolish from their point of view. Moreover the lumps of raw opium in the illicit traffic are generally rather hard and dry, and could not be mixed readily except by grinding up and mixing in powdered or granulated form.

Prepared opium (opium prepared for smoking) is essentially a boiled-down aqueous extract of raw opium. Narcotine is eliminated to a considerable degree but most of the other alkaloids are present in the same relation to each other as in the raw opium. The problem is much more difficult, but if we had sufficient information in regard to the raw opiums, we perhaps could tell also, from the ratios of codeine, papaverine and thebaine, (and possibly "porphyroxine-meconidine"), to morphine and to each other, the country of origin of prepared opium. Of course some other indication, such as the kind of container, might be more helpful in this case.

To take some seed from one country to another involves selection. Quite likely a new variety may be established, especially if cross-pollination with native varieties may occur. The influence of changed soil and climate must also be considered. Possibly, if a particular farmer or group of farmers imported fresh seed every year from some other country, their opium might be mistaken for that of the country from which the seed came. However, it is hard to see how any growers could have sufficient motive to do this. In practice, the question will probably never arise in this way.

The writer's own opinion is that variety is predominant in determining the kind of opium pro-

(Continued on next page)

duced, although other factors have some importance. But this does not mean that a variety can be transferred readily from one country to another. Each of the principal poppy-growing countries has its own varieties that are especially suited to conditions there, varieties that have been acclimated over a period sometimes of hundreds of years. Seed from the poppies of Korea or Yugoslavia could not be expected to do well in tropical India. However, the most important producing countries have their own poppy varieties under study by their Agricultural Institutes. Large-scale replacement of one variety by another, equally adapted to the country and possibly more productive of morphine or other alkaloids, is a possibility, especially in India or Turkey. So far as the effect on the project of identifying country of origin by physical and chemical means is concerned, this merely means that a continuing programme is necessary. The study of samples of opium of known origin cannot be made just once and then completely dropped. Still, observations indicate a great constancy and persistence of existing types. Some characteristics have been known for seventy-five or even a hundred years, and have not changed; e.g., the high "porphyroxine-meconidine" content of Indian opium.

The foregoing considerations are largely theoretical. Practically, we only need to concern ourselves with the fact that different countries, provinces, or areas, to produce different types of opium. The studies most needed now are chemical studies of the distinct types of raw opium produced within the different countries, especially studies of the unmixed raw opium in the same form and condition as it might be found in the illicit traffic. Simultaneously, seizures should be examined.

In filling in the groundwork on samples of known origin there should be no question of collecting masses of data merely to see what facts might emerge. Perfectly definite questions have to be answered, such as the following:

1. Are all the main types of Indian opium high in "porphyroxine-meconidine"?

2. Are all the main types of Iranian opium low in the same alkaloid?

3. Does any type of Turkish opium overlap the usual range for Indian or Iranian opium in "porphyroxine-meconidine"?

4. Are any other types of opium besides Turkish and Macedonian as low in codeine in relation to morphine content?

5. From what provinces of Turkey or Iran or States of India, must the opium be considered as a distinct type, differing from the usual opium of the country?

6. What are the characteristics of opium from areas from which it has not hitherto been chemically examined; e.g., the Shan State of Burma?

These questions and others along the same lines can be answered readily enough if authentic samples are made available and chemists are given time enough to work on them. It is hoped that the United Nations will continue this work directly, as well as encouraging its continuance by experts in the various countries which have signified a willingness to take part.[18] Some of the questions regarding established types could be answered most easily by chemists in the producing countries. The experts in other countries could work on seizures, but would also require known, authentic samples for comparisons.

The Economic and Social Council has recently adopted the resolution recommended by the Commission on Narcotic Drugs at its fourth session, which requests the Secretary-General to further, within the means available, research on the methods of determining the origin of opium, and which recommends that the Secretary-General accept, if he finds this desirable, the laboratory facilities which the Government of the United States has offered to place at his disposal for this purpose.[19]

SOME FINAL CONSIDERATIONS

1. It has been established that certain types of opium exist, and that they can be referred to certain producing countries.

2. The same types of opium can be found in the illicit traffic.

3. The studies are far from complete or sufficiently extended. They do not cover opium from all producing countries of the world nor the separate types of opium from distinct areas within the larger producing countries.

4. Much of the opium of the illicit traffic is diverted at the farm or even produced illicitly, and often it cannot be satisfactorily identified as to or-

igin, until the great gaps in the present data have been filled by the study of known samples.

5. There is every reason to believe that as studies are continued the methods will steadily become more accurate and more inclusive for determining the origin of opium in the illicit traffic.

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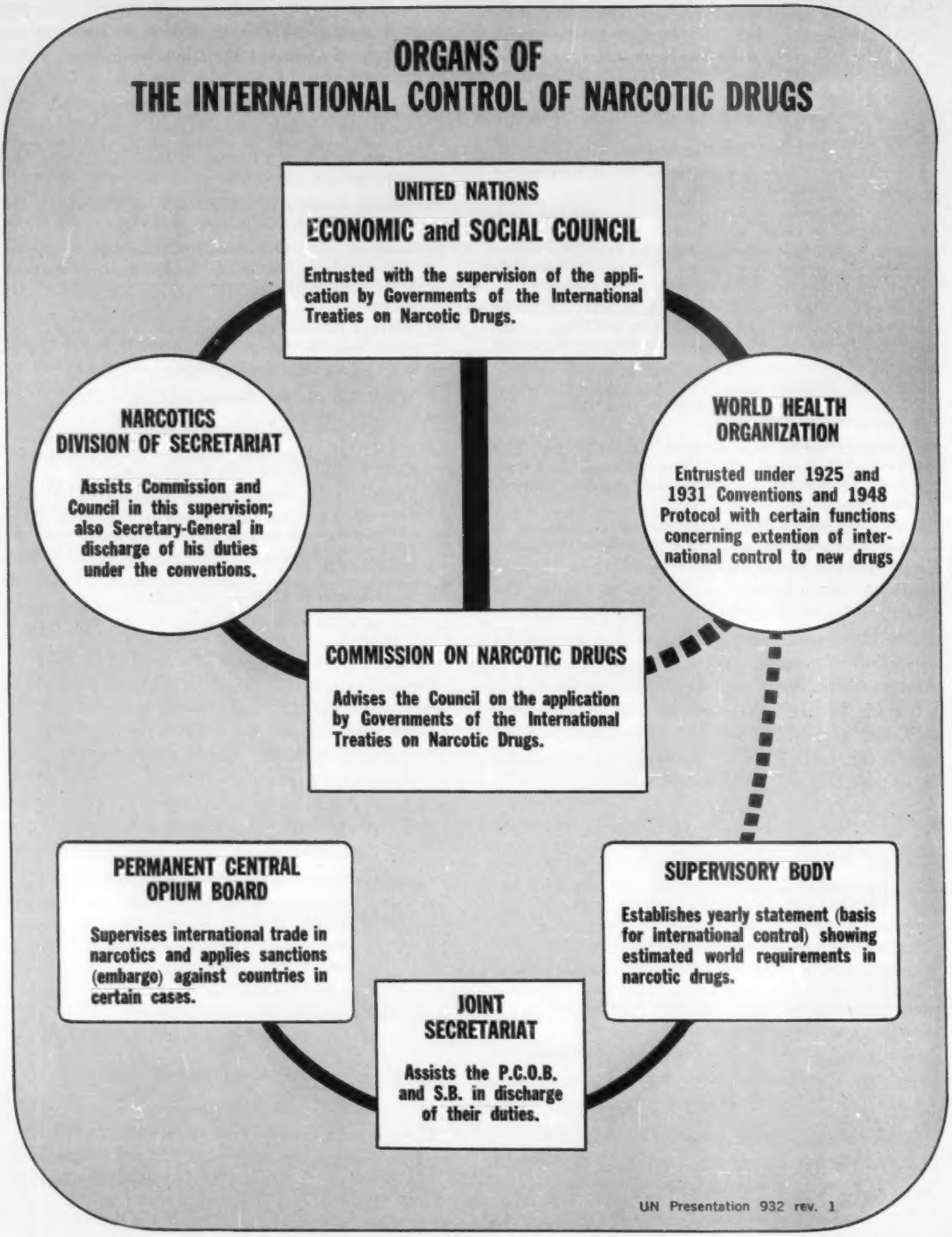
ORGANS OF
THE INTERNATIONAL CONTROL OF NARCOTIC DRUGS


UNITED NATIONS
ECONOMIC and SOCIAL COUNCIL
Entrusted with the supervision of the application by Governments of the International Treaties on Narcotic Drugs.
NARCOTICS DIVISION OF SECRETARIAT
Assists Commission and Council in this supervision; also Secretary-General in discharge of his duties under the conventions.
WORLD HEALTH ORGANIZATION
Entrusted under 1925 and 1931 Conventions and 1948 Protocol with certain functions concerning extention of international control to new drugs
COMMISSION ON NARCOTIC DRUGS
Advises the Council on the application by Governments of the International Treaties on Narcotic Drugs.
PERMANENT CENTRAL OPIUM BOARD
Supervises international trade in narcotics and applies sanctions (embargo) against countries in certain cases.
SUPERVISORY BODY
Establishes yearly statement (basis for international control) showing estimated world requirements in narcotic drugs.
JOINT SECRETARIAT
Assists the P.C.O.B. and S.B. in discharge of their duties.

UN Presentation 932 rev. 1

Official Section

FOURTH SESSION OF THE COMMISSION ON NARCOTIC DRUGS

The introduction to the report of the fourth session of the Commission on Narcotic Drugs to the Economic and Social Council of the United Nations, summing up the main problems dealt with during that session by the Commission, is hereby reproduced in full (See document E/1361):

Among the problems which the Commission considered during its fourth session, held at Lake Success, New York, from 16 May to 3 June 1949, four are of paramount importance to the successful international control of narcotic drugs and may be selected for special mention in this introduction to the Commission's report.

The first of these was the plan to draw up a new single Convention to simplify and improve the eight existing international instruments on narcotic drugs and to contain provisions for the limitation of the production of raw materials. In August 1948 the Economic and Social Council requested the Secretary-General to begin the preparatory work for this new treaty, and the first studies prepared by the Secretariat were examined by the Commission during its present session. A general survey of the whole field to be investigated in the elaboration of this instrument was presented to the Commission, together with a number of detailed studies on the more difficult and complicated aspects of the problem. As a result, the Commission was able to plan a long-range programme covering the work to be done during the next few years, and as a first step in this direction has requested the Secretary-General to prepare a skeleton convention, drafted in legal form and comparatively annotated, in time for consideration during its fifth session in 1950.

The second important question which the Commission studied was the desirability to conclude an interim agreement to limit the production of raw opium. It was generally recognized that the successful solution of this problem was perhaps the most important of a series of steps which would have to be taken if the single Convention were to become in effect a code of legislation covering the whole field of the international control of narcotics. It was clear to the Commission that the holding of such a conference was most desirable, but that its chances of success would be mainly dependent upon the agreement of the principal producing countries to limit their production of opium. Since these countries are represented on the Commission, it was possible to ascertain during the session that a measure of agreement on the principles to be followed already existed, and the Commission accordingly decided to appoint an Ad hoc Committee, composed of the representatives on the Commission of the principal opium-producing countries, to meet in September or October of the

current year to consider in detail the principles on which the interim agreement should be based and the methods by which it could achieve its aims. At the invitation of the Government of Turkey it was proposed that the Ad hoc Committee should meet in Ankara or Istanbul, and the Commission foresaw the possibility, should the results of that meeting warrant such a step, of convening, immediately before its session in 1950, a second meeting at which both the principal producing countries and the principal manufacturing countries would be represented.

The limitation of production of another important raw material, the coca leaf, is closely connected with the third major problem to which the Commission devoted its attention. When carrying out the request of the Council to select the members of the Commission of Enquiry on the coca leaf which would visit South America in September of the present year, the Commission laid great emphasis on the necessity for the Commission of Enquiry to be provided with the necessary means to make a detailed study both of the problem of chewing the coca leaf and also of the question of the limitation of its production, to which a solution must be found in connection with the preparation of the single Convention.

The fourth matter of great importance was the problem of illicit traffic. The Commission viewed with alarm the rising tide of this traffic throughout the world and the fact that clandestine factories for the illicit manufacture of narcotics were still operating in certain areas. The Commission was accordingly appreciative of the measures taken by the Government of Mexico during the past year to stamp out the illicit traffic in that country and of the drastic measures taken more recently in Peru to abolish the illicit manufacture of cocaine which was feeding that traffic throughout the world. The situation in Germany was still not satisfactory, and the Commission thought fit to make a strong recommendation to the Occupying Powers to exercise a more efficient and close collaboration in the future for the control of the illicit traffic in that country.

As far as the remaining activities of the Commission are concerned,[1] it may be appropriate to note here that the Commission heard important statements by the representatives of States which are carrying out their declared policies of suppressing the smoking of opium in their Far Eastern territories regarding the measures which have been taken to this end during the year under review. In conclusion the Commission wishes to record its appreciation of the co-operative action by the Government of the United States of America in placing at the disposal of the United Nations laboratory facilities to be used for research into the determination of the origin of opium. The Commission felt that this work, co-ordinated by and carried out under the auspices of the United Nations, would strengthen the international co-operation upon which the successful control of narcotic drugs must ultimately depend.

[1]Slight drafting change—the original text of the report reads: "The remaining activities of the Commission are sufficiently treated in the body of the report but it may be appropriate . . ."

NINTH SESSION OF THE ECONOMIC AND SOCIAL COUNCIL

The resolutions adopted by the Economic and Social Council of the United Nations pertaining to narcotic drugs during its ninth session (See document E/1553) *are hereby reproduced in full*:

The Economic and Social Council

Takes note of the report of the fourth session of the Commission on Narcotic Drugs (See document E/1361).

* * *

REQUESTS FROM GOVERNMENTS FOR INFORMATION ON NARCOTIC DRUGS

The Economic and Social Council,

Being informed that it is essential for the Commission on Narcotic Drugs, in the exercise of its supervision over the application by Governments of the provisions of the international instruments on narcotic drugs, including those synthetically produced,[1] to be furnished with complete and accurate information regarding such application,

Authorizes the Secretary-General to ask Governments to furnish such explanations or additional information regarding statements contained in

annual reports,[2] seizure reports,[3] texts of laws and regulations[4] or in other reports or documents forwarded by them to the Secretary-General, as may be necessary to enable the Commission on Narcotic Drugs to discharge its functions.

* * *

ANNUAL REPORTS REQUIRED BY ARTICLE 21 OF THE CONVENTION OF 13 JULY 1931 FOR LIMITING THE MANUFACTURE AND REGULATING THE DISTRIBUTION OF NARCOTIC DRUGS

The Economic and Social Council,

Having had its attention drawn by the Commission on Narcotic Drugs to the fact that on 16 May 1949, the date of the opening of the fourth session of the Commission, annual reports for the year 1947, to be submitted by Governments under Article 21 of the 1921 Convention, had not been received from a number of countries,

Being informed that such reports are indispensable to the proper functioning of the Commission,

Requests the Secretary-General to address a special circular *note verbale* to the Governments mentioned in the list annexed to this resolution, which since 1945 have failed to submit their reports for two years including the year 1947, calling attention to their obligations under Article 21 of the 1931 Convention to forward annually a report on the working of the Convention in their territories, and to the fact that this report is to reach the Secretary-General on or before 30 June of the year following that to which it relates, in accordance with the Commission's decision as approved by the Council.

ANNEX

LIST OF COUNTRIES WHICH SINCE 1945 HAVE FAILED TO SUBMIT ANNUAL REPORTS FOR TWO YEARS INCLUDING 1947

Africa

Ethiopia
Liberia

Asia

Afghanistan
Burma
Iran
Lebanon
Saudi Arabia
Siam
Syria
Transjordan

Europe

Iceland
Liechtenstein
Luxembourg
Monaco
Portugal
Romania
San Marino
Union of Soviet Socialist Republics

North and Central America

Costa Rica
Guatemala
Honduras
Nicaragua
Panama

South America

Bolivia
Ecuador
Paraguay
Peru

* * *

SIMPLIFICATION OF EXISTING INTERNATIONAL INSTRUMENTS ON NARCOTIC DRUGS

The Economic and Social Council

Approves the decisions taken by the Commission on Narcotic Drugs during its fourth session with a view to the elaboration of a new single convention to replace existing international instruments relating to the control of narcotic drugs;[5]

Approves the decision of the Commission to convene a meeting of an *ad hoc* committee composed of the principal opium-producing countries to consider the possibilities of reaching an interim agreement for limiting the production of raw opium to medical and scientific needs;

Requests the Secretary-General to take all measures necessary to give effect to these decisions as expeditiously as possible.

* * *

CONTROL OF ILLICIT TRAFFIC

The Economic and Social Council,

Having been informed by the Commission on Narcotic Drugs that the volume of illicit traffic throughout the world is still considerable, that the amounts of narcotic drugs in the illicit traffic in certain areas have increased alarmingly, that clandestine factories are still operating and that a new danger has been created by the appearance of synthetic drugs,

Recommends that all States should

1. Increase their efforts to detect and suppress the illicit production of opium, coca leaves and other raw narcotic materials from which narcotic drugs are produced, and the illicit manufacture of these drugs as well as of those produced synthetically;
2. Apply stringent measures of control to the trade in, the distribution and the transportation of narcotic drugs, paying special attention to the smuggling of drugs in aircraft;
3. Strengthen measures for apprehending traffickers and subject them to severe penalties.

Methods of determining the origin of opium by chemical and physical means

The Economic and Social Council,

Having taken into account the replies of Governments to inquiries made by the Secretary-General pursuant to its resolution 159 (VII).II.C,[6] on the methods of determining the origin of opium,

Having noted the fact that the Secretary-General does not at present have the material means necessary for the safe keeping of dangerous substances nor laboratory facilities for carrying out chemical research activities,

Considering that the Government of the United States of America has declared its willingness, informally and without undertaking any legal obligation, to place United States laboratory facilities at the disposal of the United Nations in a way to be arranged in detail with the Secretary-General for the purpose of:

(*a*) Enabling officials of the Secretariat to carry out research on the methods of determining the origin of opium by chemical and physical means;

(*b*) Co-ordinating the research activities undertaken by other Governments in this field;

(*c*) Maintaining in the custody of the Government of the United States a centre for the distribution and exchange of samples of opium to those scientists and scientific institutions that may be designated by Governments which participate in the joint research project in accordance with the Council's resolution referred to above,

Requests the Secretary-General to further, within the means available, research on the methods of determining the origin of opium; and

Recommends the Secretary-General to accept, if he finds this desirable, the laboratory facilities which the Government of the United States has offered to place at his disposal for this purpose.

* * *

Precautionary measures to be taken with regard to synthetic narcotic substances

The Economic and Social Council,

With a view to accelerating the application in similar cases of the principle contained in the recommendation[7] of the Expert Committee of the World Health Organization on chemical compounds of the dolantin and amidone types, [see document WHO/HFD/9, paragraph 8].

Requests the Secretary-General to transmit to all Governments the recommendation of the Expert Committee of the World Health Organization that each Government should endeavour to apply at the earliest possible moment provisions whereby drugs of a particular chemical type, analogues of which have been proved to be habit-forming (for example, analogues of dolantin and amidone), could be placed under control until such time as they have been shown not to be habit-forming.

* * *

Commission of Enquiry on the Coca Leaf

Resolution of 23 July 1949

The Economic and Social Council,

Having noted that the Commission on Narcotic Drugs elected during its fourth session, in implementation of resolution 202 (VIII),[8] the following experts to membership of the Commission of Enquiry on the coca leaf:

Professor D. Granier-Doyeux — Mr. H. B. Fonda
Professor F. Verzar — Mr. Razet;

Having been advised by the Commission on Narcotic Drugs that the Commission of Enquiry should be given adequate time to perform its tasks satisfactorily, and that the funds so far appropriated by the General Assembly for the investigation in Peru are insufficient to allow a thorough inquiry to be conducted in that country,

Having noted also that the request of the Government of Bolivia for the Commission of Enquiry to extend its investigations to that country was transmitted to the Secretary-General after the General Assembly had made the afore-mentioned budgetary appropriations,

Having been informed that the Secretary-General and the Advisory Committee on Administrative and Budgetary Questions of the General Assembly are of the opinion that only the General Assembly is competent to appropriate the additional funds necessary to enable the Commission of Enquiry to remain longer in Peru and to extend its investigations to Bolivia also,

Decides:

1. To record its satisfaction at the declarations made to the Commission on Narcotic Drugs

by the representatives of Bolivia and Peru and the willingness of the Governments of these two States to grant to the Commission of Enquiry all assistance and facilities for the successful performance of its mission;

2. To request the members of the Commission of Enquiry to start work in Peru not later than during the second week of September 1949;
3. To endorse the opinion of the Commission on Narcotic Drugs that the means should be given to the Commission of Enquiry to extend its investigations to Bolivia and to carry out its tasks satisfactorily; and accordingly
4. To request the General Assembly to appropriate before 30 September 1949 the additional funds necessary to enable the Commission of Enquiry, with the terms of reference given in resolution 159 (VII) IV, to spend at least three months in Bolivia and Peru and to prepare a report on its work after the conclusion of its investigations in the field.

EDITOR'S NOTES

1. See footnote No. 5.
2. In accordance with Article 21 of the 1931 Convention, Governments Parties to this Convention have undertaken to . . . "forward to the Secretary-General an annual report on the working of the Convention in their territories, in accordance with a form drawn up by the Commission on Narcotic Drugs of the Economic and Social Council."
3. In accordance with Article 23 of the 1931 Convention, the . . . "Parties will communicate to each other, through the Secretary-General of the United Nations, as soon as possible, particulars of each case of illicit traffic discovered by them which may be of importance either because of the quantities involved or because of the light thrown on the sources from which drugs are obtained for the illicit traffic or the methods employed by illicit traffickers." The particulars to be given in these reports, commonly designated "seizure reports", are specified in the second paragraph of the same article.
4. In accordance with the first part of the above-mentioned Article 21 of the 1931 Convention the . . . "Parties shall communicate to one another through the Secretary-General of the United Nations the laws and regulations promulgated in order to give effect to the . . . Convention".
5. These decisions (see pages 45 through 47 of the Report on the fourth session of the Commission on Narcotic Drugs, document E/1361) were based on the following resolution adopted by the Economic and Social Council at its seventh session:

   "*The Economic and Social Council,*

   Being advised by the Commission on Narcotic Drugs that the international instruments relating to the control of narcotic drugs are:

   The International Opium Convention signed at The Hague on 23 January 1912 and Protocols of Cloture signed at The Hague on 23 January 1912, 9 July 1913 and 25 June 1914, respectively, as amended by the Protocol of 11 December 1946;

   The Opium Agreement, Protocol and Final Act signed at Geneva on 11 February 1925, as amended by the Protocol of 11 December 1946;

   The Convention, Protocol and Final Act signed at Geneva on 19 February 1925, as amended by the Protocol of 11 December 1946;

   The Convention for Limiting the Manufacture and Regulating the Distribution of Narcotic Drugs, Protocol of Signature and Final Act signed at Geneva on 13 July 1931, as amended by the Protocol of 11 December 1946;

   The Opium Agreement and Final Act signed at Bangkok on 27 November 1931, as amended by the Protocol of 11 December 1946;

   The Convention for the Suppression of the Illicit Traffic in Dangerous Drugs, Protocol of Signature and Final Act, signed at Geneva on 26 June 1936, as amended by the Protocol of 11 December 1946;

   The Protocol to bring under international control drugs outside the scope of the 1931 Convention;

   Taking note of the complexity of these instruments and the desirability of simplifying the organization of international co-operation for controlling the traffic in narcotic drugs,

   Requests the Secretary-General to begin work on the drafting of a new single convention in which provision shall be made for a single body to perform all control functions, excepting those which are now or may hereafter be entrusted to the Commission on Narcotic Drugs. This single convention shall replace the above-mentioned instruments relating to narcotic drugs and also include provisions for the limitation of the production of narcotic raw materials."
6. This resolution reads as follows:

   "*The Economic and Social Council,*

   Having noted the work undertaken with regard to determining the origin of opium by chemical and physical means as outlined in document E/CN.7/117,

   Decides:

   1. To instruct the Secretary-General to transmit to Governments all available documentation on this matter;

   2. To invite Governments to send to the Secretary-General all pertinent information in their possession and, in particular those Governments which have the necessary experts and laboratory facilities, to inform the Secretary-General whether they are willing to participate in a joint programme of research and to submit proposals concerning the methods of co-operation which they may recommend;

   3. To invite the Governments of the producing countries to furnish, subject to the provisions of Chapter V of the Geneva Convention of 1925* samples of the opium produced in their countries, on the request of the Governments which are participating in the joint research programme."
7. This recommendation reads as follows:

   "The Committee

   Recommends that provision should be made in any new

*This chapter sets up the rules concerning the international trade in narcotic drugs.

convention, whereby substances of a particular chemical type, analogues of which have been proved to be habit-forming, could be placed under control until such time as they are shown not to be habit-forming."

8. Recommendations and resolutions previously adopted on this subject by the Commission on Narcotic Drugs, the Economic and Social Council and the General Assembly are as follows:

(a) The Commission on Narcotic Drugs adopted at its second session (24 July to 8 August 1947) the following resolution:

"The Commission on Narcotic Drugs,

Recognizing the importance of the request of the Government of Peru to determine with the least possible delay the effects, whether harmful or otherwise, of the chewing of the coca leaf in certain regions of South America,

Recommends that the Econimic and Social Council should approve in principle the despatch of a Commission of Enquiry to Peru and such others of the countries concerned as may request such an inquiry."

(b) The General Assembly, during its second session, adopted the following resolution on 17 November 1947:

"The General Assembly,

Taking note that the Commission on Narcotic Drugs has, in its report to the Economic and Social Council on the second session of the Commission, adopted a resolution concerning the request made by the Government of Peru that a Committee of Experts should be sent to study the effects of chewing coca leaves on the inhabitants of certain zones of the Andean region,

Expresses its interest in this important subject, and

Invites the Economic and Social Council, without wishing to prejudge the issue in any way, to consider it with all the urgency that it deserves."

The following resolutions were adopted by the Economic and Social Council during its sixth, seventh and eighth sessions:

(c) *"The Economic and Social Council,*

Having taken note of the resolution adopted by the General Assembly on 17 November 1947 concerning the request of the Government of Peru to determine with the least possible delay the effects, whether harmful or otherwise, of the chewing of the coca leaf in certain regions of South America,

Approves, in principle, the despatch of a Commission of Enquiry to Peru, and

Requests the Secretary-General to submit to the Council at its next session a detailed plan for such a commission, taking into account any request which may be received from other countries concerned."

(Sixth session, adopted 2 March 1948)

(b) *"The Economic and Social Council,*

Having taken note of the resolution adopted by the General Assembly on 17 November 1947 concerning the problem of the coca leaf, and of the "Detailed Plan" submitted by the Secretary-General,

Approves the despatch of a Commission of Enquiry to Peru at the earliest possible date to investigate the effects of chewing the coca leaf and the possibilities of limiting its production and controlling its distribution; and

Recommends that the General Assembly appropriate the necessary funds for the Commission of Enquiry."

(Seventh session, adopted 10 August 1948)

(c) *"The Economic and Social Council,*

Requests the Commission on Narcotic Drugs to select during its fourth session, for membership of the Commission of Enquiry into the effects of chewing the coca leaf, a team of two experts in the international administration and control of narcotic drugs, and a team of two medical experts to be chosen after consultation with the World Health Organization from the list of candidates already proposed by that Organization."

(Eighth session, adopted 2 March 1949)

Calendar of Meetings

of the International Organs Concerned with Narcotics

1949

8 September	Commission of Enquiry on the coca leaf	Lake Success
26 September	Permanent Central Board (54th session)	Geneva
5 October	Supervisory Body (33rd session)	Geneva
21 November	Ad Hoc Committee of the principal Opium-producing Countries	Turkey

1950

7 February	Economic and Social Council (10th session)	Lake Success
10 April	Commission on Narcotic Drugs (5th session)	Lake Success
12 June	Permanent Central Board (55th session)	Geneva
22 June	Supervisory Body (34th session)	Geneva
3 July	Economic and Social Council (11th session)	Not yet determined
25 September	Permanent Central Board (56th session)	Geneva
4 October	Supervisory Body (35th session)	Geneva

Bibliography

The Secretariat presents a brief tentative bibliography of opium as a drug of addiction. This bibliography was established from the source material available at the United Nations permanent headquarters: it makes no claim of being complete. A certain number of books or articles which were either outdated or not entirely to the point have been expressly omitted from this list. The editors would be glad to receive additions to this bibliography and they repeat their appeal to the competent organs (libraries, etc.) in various countries to collaborate with them by sending periodicals, references and other material which might be useful in the field of narcotic drugs.

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Chiefly on the subjective effects of opium-smoking on the human mind; touches upon other phases of the problem.

ABADIE, Jean: *La Thérapeutique des morphinomanes et des fumeurs d'opium*, Journal médical français, Paris, 1914, VII, pages 249-262 (Acad. méd.).

Outline of therapeutic treatment of morphinists and opium addicts; covers the mental and physical causes of addiction and constitution of the victims. Preventive steps, methods of suppression and treatment.

ABRAMS, Meyer Howard: *The Milk of Paradise*, Harvard University Press, Cambridge, 1934.

This is a literary study of the addiction of four prominent English authors: De-Quincey, Crabbe, Francis Thompson and Coleridge. Bibliography.

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ANDREW, E., BUSHNELL, K.: *Opium and Vice*, 1895.

ANDREWS, C. F.: *The Opium Evil in India*, 1926, *Britain's Responsibility*, London, Student Christian Movement, 63 pages.

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ASHFORD, M., HALBERT, V. B.: *How Do You Treat the Opium Habit, Viewed as a Neurosis?*, New York Medical Journal, 1914, c. pages 674-721.

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BRERETON, William H.: *The Truth About Opium*, W. H. Allen & Co., London, 1883, 275 pages.

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BRITISH and CHINESE Officials, Archbishops, Members of Parliaments and Others: *The Truth About Opium-Smoking*, London, Hodder & Stoughton, 1882, 124 pages.

A group of Chinese missionaries give their opinions on the subject of opium-smoking. Illustrated.

BRITISH MALAYA OPIUM COMMITTEE: *Proceedings of the Committee appointed by His Excellency, the Governor and High Commissioner, to inquire into matters relating to the use of opium in British Malaya*. 525 pages, Singapore, J. E. Tyler, 1924.

The Proceedings are divided into three chief sections:

A. The Report of the Committee

B. Part II contains the appendices to the Report, including voluminous Tables of Statistics and miscellaneous documents

C. Covers minutes of the meetings and analysis of evidence presented

BRITISH OFFICIAL DOCUMENTS: *Proceedings of the Commission appointed to inquire into matters relating to the use of opium in the Straits Settlements and the Federated Malay States*, Singapore, 1908.

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BRUNET, F.: *La Mort des fumeurs d'opium*, in Bulletin médical, 4 avril, 14 octobre, No 80, 1903.

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CHOPRA, R. N., GREMAL, K. S.: *The Opium Habit in India, 1927*, An analysis of 100 cases amongst the Sikh population of Calcutta. Indian Journal of Medical Research XV, 1927, pages 57-65.

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CHOPRA, R. N. & G. S.: *Opium Habit in India*. Studies on the physical and mental effects produced by opium addiction, 1934, Indian Journal of Medical Research XXIII, page 359.

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Detailed description of withdrawal symptoms in 200 cases of addicts under treatment. Bodily and mental effects of cure studied. Summary shows that the nervous and digestive symptoms bear the brunt of the addiction. Conclusion that lecithin and glucose restore the nerves of addicts.

COBBE, William Rosser: *Doctor Judas: A Portrayal of the Opium Habit*, Chicago, 1895, 320 pages.

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DOERING, Michael: *Acroama medico-philosophicum de opii usu*, 1620.

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DUPOUY, Roger: *Les Opiomanes; Mangeurs, Buveurs et Fumeurs d'Opium*, Paris, Librairie Felix Alcan, Etude clinique médico-littéraire, 1912, 323 pages.

A much more thorough treatment than given by most authors. Footnote references are given and a bibliography of 10½ pages. An important book for the time.

DUPRE, Ernest & Logre and BENJAMIN, Joseph: *Intoxication par l'Opium*, in Nouveau traité de médecine (Roger, Vidal, Teissier), Paris, 1922, pages 356-398.

The discussion is from the point of view of toxicology, but covers addiction use. Pages 387-397 concern Les Fumeurs d'Opium. La Morphinomanie takes pages 363-387 and L'Héroïnomanie pages 397-398.

DURANTY, W.: *Opium-Smoking; Memoir*, Atlantic Monthly, 171, 106-111, 13 Feb. 1943.

A short article by a foreign correspondent who became acquainted with opium-smoking in France in 1918, and how his familiarity with the drug saved his life some years later in China. Written in popular style.

EARLE, C. W.: *The Opium Habit; a Statistical and Clinical Lecture*, Chicago (Medical Review, St. Louis), 1880, Vol. 2, pages 442-446, 493-498.

Results of investigations of druggists prescribing and selling opium and morphine-containing medicines. Addiction growing very fast in the States. Study of the types of persons taking drugs, occupation, nationality, etc. Physical effects and moral and mental effects. Concludes that the opium habit is a vice, not a disease, and withdrawal is the only treatment. Death from withdrawal is very rare.

ENCYCLOPAEDIE VAN NEDERLANDSCHE-INDIE: MARTINUS, Nijhoff, *Opium*, Vol. III, pages 155-167, Leiden, 1919.

An article on opium with special reference to opium-smoking in the Netherlands-Indies. The history of the Netherlands-Indies system of opium control, sale, etc., is given in detail.

ENCYCLOPAEDIE VAN NEDERLANDSCHE-INDIE: Supplement Vol. VII, MARTINUS, Nijhoff, *Opium*, pages 300-314, The Hague, 1935.

Supplement and continuation of the article in Vol. III, under the headings: (1) Particulars concerning the origin of the opium poppy, the obtaining of opium, and its effect on the human body; (2) the Netherlands-Indies and opium; (3) international combatting of the use of opium.

FOREIGN POLICY ASSOCIATION, OPIUM RESEARCH COMMITTEE: The Opium Situation in India, 1926, 47 pages.

This article, signed by Helen Moorhead and William T. Stone, reviews the situation in India both as regards export policy and consumption. Bibliography.

FOREIGN POLICY ASSOCIATION—COMMITTEE ON TRAFFIC IN OPIUM: Findings of survey conducted by Committee, New York, 1925.

FOSTER, A.: *The Wresting of Medical Evidence: A Criticism of the Report of the Royal Commission on Opium, 1893.*

GAMEL, Raymond: *L'abus de l'opium; chiqueurs, mangeurs, buveurs et fumeurs en France et dans les colonies françaises*, Montpellier, Coulet & fils, 1912.

GAVIT, John Palmer: *Opium*, London, Routledge, 1925.

Written in the light of the Geneva Conferences, this book discusses the international control of the drug traffic, and also considers opium addiction and its effects in India and elsewhere. It is well-written and the tone is moderate.

GEORGELIN, H. J.: *Etude sur l'opiomanie et les fumeurs d'opium considérés au point de vue de l'hygiene sociale*, Bordeaux, 1906.

GIDE, Paul: *L'Opium*, Librairie de la Société du Recueil Sirey, 1910.

A doctor's thesis covering (1) botanical and chemical aspects of opium; (2) methods of preparing opium for smoking; (3) the struggle against opium addiction; (4) the effects of smoking on the body and the mind. This is a serious study.

GILES, Herbert A.: *Some Truths About Opium*, Cambridge, Heffer, 1923.

GOLDSMITH, Margaret: *The Trail of Opium*, London, Robert Hale Ltd., 1939.

Miss Goldsmith is not a specialist in the field of narcotics, but she has written an interesting and informative historical account of how opium came to be used as a medicine and as a drug of addiction. Book includes illustrations and bibliography.

GREVENSTUK, A., VAN DER WOERD, L. A.: *Publications of the Commission for aiding the research in the field of opium-smoking*, Geneeskundig tijeschrift voor Nederlandsch-Indie, 80, pages 1319-1337.

GRIFFIN, Sir Lepal: *The Lotus-Eaters in the Nineteenth Century*, March 1894, page 513.

An Englishman who has been a magistrate in India gives his opinion of the value of the work of the Royal Commission in the Far East and adds his opinion that opium is less of a problem in India than alcohol.

(AN HABITUATE): *Opium Eating: An Autobiographical Sketch*, Philadelphia, Claxton, Remsen & Haffelfringer, 1876, 150 pages.

The author is a veteran of the Civil War who became addicted to opium following his imprisonment at Andersonville, S. C. He employs a highly florid style. He gives an account of all the phases of opium addiction.

HARTWICH, Carl: *Die menschlichen Genussmittel, ihre Herkunft, Verbreitung, Geschichte, Auwendung, Bestandteile und Wirkung*, 3. *Opium*, 1911. Leipzig, C. H. Tauchnitz, 1911.

A very valuable work at the time; contains material still of much interest.

HAWKINS, John A.: *Opium Addicts and Addiction*, Boston, Bruce Humphries, 1937, 156 pages.

Descriptions of some addicts and addiction in the United States. Morphine addiction is included in the author's term. The book is rather superficial and "popular".

HESSE, Erich: *Narcotics and Drug Addiction* (translated from German by Frank Gaynor), New York, Philosophical Library, 1946.

A recent work, tends to skim the surface: semi-popular in style, mixes history and League of Nations figures.

HICKLING, D. P.: *The Opium Habit and its Treatment*, Washington Medical Annals, 1915, XIV, pages 221-31.

A short article on addiction based in part on the clinical study of patients of the Washington Asylum Hospital. Advice given to doctors for treating addicts.

HOLITSCHER, A.: *Alcoholsitte, Opiumsitte, ein Vergleich*, Munich, Reinhardt, 1908, 39 pages.

A study of the effects of addiction including psychological aspects of the problem. Special emphasis on India and China. The author is a German physician.

HUBBARD, Fred. Herman: *The Opium Habit and Alcoholism*, New York, A. S. Barnes & Co., 1881, 259 pages.

Although this is an old work, the question of addiction is handled from a strictly medical viewpoint and includes a selection of case histories as well as an analysis of the psychological effects of opium on the human mind.

HULL, J. M.: *The Opium Habit* (Biennial Report), Iowa State Board of Health, 1885, Vol. 3, pages 535-545.

INTERNATIONAL ANTI-OPIUM ASSOCIATION, PEKING: *The War Against Opium*, Tientsin Press, 1922.

This Association was founded in 1918 to direct those forces which were trying to suppress the illicit production of opium and to forge fresh legislative weapons when necessary. The book contains chapters on opium smoking in China, India, and Japan. It also contains a discussion of the medical aspects of opium-smoking.

INTERNATIONAL LABOUR OFFICE: *Opium & Labour* (Studies & Reports, Series B, No. 22), Geneva, 1935.

Based primarily on the report of the League of Nations' Commission of Enquiry, this study considers that workers in the Far East turn to opium-smoking as a means of escaping the dreadful working conditions and environment in which they spend their lives. The lack of medical facilities leads many workers to use opium as a pain-killer. The approach is from the social point of view.

ITO, Ryoiti: *On the Systematic Study of Opium for Smoking*, II-V. Manshu Igaki zahi, vol. XXVI, pages 23-27, 219-228, 411-423; vol. XXVII, pages 481-497.

In Japanese.

JEANSELM, E.: *Fumeurs d'opium*, in Bulletin de la Société de l'internat des hôpitaux de Paris, Feb. 1909.

JEANSELM, E.: *Mangeurs et fumeurs d'opium*, Revue générale de sciences pures et appliquées.

JEHANGIR, R. P.: *Short History of Lives of the Bombay Opium Smokers.*

KANE, H. H.: *Drugs that Enslave* (The Opium, Morphine, Chloral, and Hashish Habits), Philadelphia, P. Blakiston, 1881.

A study of opium addiction and the methods for curing it. Despite its age, this book is informative.

KANE, H. H.: *Opium Smoking in America and China*, New York, G. P. Putnam's Sons, 1882.

There is considerable material here on opium-smoking both in China and the United States, although at times the presentation becomes slightly over-dramatic.

KELLY, M. Gerard: *Opium Addiction and its Treatment*, Irish Journal of Medical Science, 6, No. 130, pages 627-636.

Simply written study of addiction; mainly confined to treatment by the Modinos blister serum method. Classification of addicts, eaters, smokers, and injectors. A brief summary is given of the advantages and disadvantages of the blister serum treatment.

KO. K.: *On the Function of the Female Genitals of Opium Addicts*, Journal of Medical Association of Formosa, Vol. XXXIII, No. 1 (346), Jan. 1934, Pharmaceutical Institute of Government Medical School, Formosa, No. 47.

Clinical study.

KOBAYASHI, S.: *Klinische Beobachtungen ueber die Zaehne und Weichgewebe der Mundhoehle von Opiisten.* II. Mitteilung: Ueber die Befunde der Mundhoehle von Geburt an Opium gewoehnter Mensche (Clinical observations of the teeth and soft tissue of the oral cavity of opium addicts. II. Communication with regard to condition of the oral cavity of human beings accustomed to opium from birth). Journal of Nippon Dental Association, Vol. 28 No. 12, Dec. 1935. Department of Hygiene, Govt. Res. Inst. Formosa, No. 281.

Examinations to determine the influence of opium use on the teeth. Teeth seem looser and fall out earlier in the case of those accustomed to opium from birth, compared to ordinary opium addicts.

KUANG, Kan Nai: *The Treatment of Opium and Narcotic Addiction*, China Medical Journal, 1937, Vol. 51, page 815.

Simply written outline of the Chinese Government's measures against opium addiction, the suppression policy, list of State hospitals and institutions for addicts. Brief statements of methods of detection.

KUBOTA, K.: *Die Funktion des vegetativen Nerven-systems von Opium gewoehnten Personen* (The function of the vegetative nerve system of persons accustomed to opium), Twaiwan-Igakkai-Zasshi, Vol. 32, No. 10 (343), Oct. 1933, Pharmacol. Inst. of Govt. Med. School, Formosa, No. 45.

Study of the nervous system of opium addicts particularly in the state between addiction and abstinence; comparison with morphinists.

LAIGNEL-LAVASTINE, Maxime; VINCHON, Jean: *Les réflexions de Philippe Hecquet sur l'usage de l'opium*, Paris, Aesculape, 1923, XIII, N.S. Pages 121-124.

LALOY: *Le livre de la fumée*, Paris, 1913.

LAURENT (Dr.): *Essai sur la psychologie et la physiologie des fumeurs d'opium*, Paris, 1897.

LEE, James S.: *The Underworld of the East*, New York, Greenberg, 1935.

LEAGUE OF NATIONS: Advisory Committee on Traffic in Opium and Other Dangerous Drugs, *Use of Prepared Opium in British Malaya*, Communicated to the Committee by the British representative, 1927.

Comprises a letter of instruction to the Governor of Malaya from the Secretary of State. This document gives an official view of the situation in the Malay peninsula in 1927.

LEAGUE OF NATIONS: *Report of the Committee of Enquiry into the Control of Opium-Smoking in the Far East.* 4 volumes, C. 635. M. 254. 1930.

A detailed and comprehensive work.

Vol. I (158 pages)—Report with comparative tables, maps and illustrations.

Vol. II (495 pages)—Detailed memoranda on each territory visited by the Commission (includes Burma, Federated Shan States, Straits Settlements, Federated Malay States, Unfederated Malay States, Brunei, Sarawak, British North Borneo, Siam, Indo-China, Hong Kong, Macao, Formosa, Kwantung, Philippine Islands and Chosen.

Vol. III (304 pages)—Collection of Laws and Regulations governing the control of Opium-Smoking in the territories visited by the Commission of Enquiry.

Vol. IV (462 pages)—Replies by Governments to the questionnaire of the Commission and other Official Documents.

LEAGUE OF NATIONS: *Conference on the Suppression of Opium-Smoking convened under Article XII of the Geneva Opium Agreement, 1925. Bangkok,* Nov. 9 to 27, 1931 (Document C. 577. M. 284. 1932. XI).

Proceedings (Minutes and Documents) 127 pages.

LEAGUE OF NATIONS: *First Opium Conference,* Nov. 3, 1924 to Feb. 11, 1925.

Proceedings (Minutes and Annexes) 173 pages.

LEAGUE OF NATIONS: Advisory Committee on Traffic in Opium and Other Dangerous Drugs—*Report of the Joint Sub-Committee of the Advisory Committee and The Health Committee appointed to examine Recommendation X of the Bangkok Conference* (Document O.C. 1553(1), C.H. 1151(1), (5 pages), Geneva, 30 May 1934.

The joint Sub-Committee included six experts, three from the Advisory Committee, three from the Health Committee. Discusses physiological and psychological effects of smoking opium, the constituents causing them, methods for treating addiction, and the discovery of a method for determining the nature of dross.

LIBERMANN, Henri: *Les fumeurs d'opium en Chine,* Boulogne-sur-mer, 1886.

Study of the use of opium in China, its spread, causes and effects. Contains some self-experimentation by the author and discussion of the measures which could be taken to stop addiction.

LIGHT, Arthur B. et al: *Opium Addiction* (116 pages), Committee for the Clinical Study of Opium Addiction, Philadelphia, 1929.

Eleven separate studies, many of which apply particularly to morphine, rather than opium.

LINDESMITH, Alfred Roy: *Opiate Addiction* (238 pages), Bloomington, Indiana, The Principia Press, 1947.

A study of addiction based both on case studies and the findings of other investigators. He concludes Harrison Act should be amended to allow physicians to supply drugs to addicts. Good bibliography.

LYALL, Leonard A.: *Does Opium Smoking Shorten a Man's Life?* (9 pages), London, The Women's International League, 1937.

A short and interesting pamphlet written by a former president of the Permanent Central Opium Board who lived in the Far East. He answers the question affirmatively.

MacCALLUM, E. P.: *Twenty Years of Persian Opium,* (1908-28).

MARKS, Jeanette: *The Opium Habit,* in Social Science, edited by Leroy Allen, 1929.

MARTIN, Ernest: *L'Opium, ses abus, mangeurs et fumeurs d'opium,* Morphinomanes, Paris, Société d'éditions scientifiques, 1893, 175 pages.

Review of the situation at the time.

MATTISON, J. B.: *The Treatment of Opium Addiction,* New York & London, G. P. Putnam's Sons, 1885, 49 pages.

A paper presented to the American Association for the Cure of Inebriates; details a method of treatment original with the writer. Really concerns addiction to opiate drugs rather than opium, and probably has little present value.

MAY, H. L.: *Survey of Opium Smoking Conditions in the Far East,* Opium Research Committee of the Foreign Policy Association, 1927, 55 pages.

A short, incisive, thoughtful study of the Far Eastern Problem by the President of the Permanent Central Opium Board. Parts I and II cover Mr. May's general conclusions, while Annex I considers briefly the condition in each of the areas in which opium-smoking is most prevalent. There is a bibliography at the end.

MERRILL, Frederick T.: *Japan and the Opium Menace,* International Secretariat, Institute of Pacific Relations and the Foreign Policy Association, New York, 1942.

Despite its title, this book is still valuable. A serious, informative study of the opium situation in the Far East.

MERRILL, F. T.: *The Opium Menace in the Far East,* Foreign Policy Association, New York, Vol. XII, No. 24 (March 1937).

MERWIN, Samuel: *Drugging a Nation,* New York & Chicago, Fleming H. Revell Co., 1908.

A study of conditions in China with a special chapter on Shansi Province. A serious work based on personal experience in the Far East. Illustrated.

MEYLERT, A. P.: *Notes on the Opium Habit,* New York, 1885.

Notes on some cases of opium addicts with cause of their addiction and effects. Method of cure with results following withdrawal.

deMOL van OTTERLOO, Antonie: *De Opiumschuiver in het Hospitaal,* Utrecht, Kemink en zoon, 1933, XII, 170 pages.

Thesis.

MULHALL, Sara Graham: *Opium, the Demon Flower,* New York, Montrose Publishing Company, 1926.

An outline of the drug addiction problem, its effects on the victims and their families. Description of how habit is acquired. Steps taken by Governments to outlaw opium-smoking and trafficking. A short statement of the steps taken through the International Conferences.

NELIGAN, A. R.: *The Opium Question with Special Reference to Persia,* London, 1927, 84 pages.

This book contains a serious study about opium trade in Iran, India and the Far East. It also covers the decisions of the League of Nations in regard to the International Control of the Traffic in Opium and other Drugs of Addiction. Contains one appendix about Opium-Smoking Methods and Effects.

OH. J.: *Ueber die subjektiven Abstinenzercheinungen der Opiisten* (On the subjective phenomena of abstinence in the case of opium addicts). Journal of Med. Assoc. of Formosa, Vol. XXXIII, No. 12, (No. 357), Dec. 1934, Pharmacol. Inst. of Govt. Med. School in Taihoku, Formosa, No. 69.

Analytical study of abstinence phenomena, both physical and mental. Deals with type, duration and intensity of subjective phenomena.

OH. J.: *Ueber die Senkungsgeschwindigkeit der roten Blutkoerperchen bei den Opiisten.* (On the rapidity of reduction of the red blood corpuscles in the case of opium addicts), Journal of Med. Assn. of Formosa, Vol. XXXIII, No. 10, Oct. 1934, Pharmac. Inst. of Govt. Med. School, Formosa, No. 66.

Short statistical study of rapidity of reduction of red blood corpuscles in opium addicts during periods of cure.

OH. J.: *Ueber das Leukozytenbild von Opiisten im Abstinenzzustande.* (White blood corpuscles of opium addicts under conditions of abstinence), Journal of Med. Assoc. of Formosa, Vol. XXXIV, No. 10 (367), Oct. 1935, Pharmac. Inst. of Med. Govt. School, Formosa, No. 86.

Comparative study between white blood corpuscles during conditions of abstinence of opium addicts and morphinists.

OH. J.: *Ueber einige objektive Abstinenzercheinungen der Opiisten* (On certain objective phenomena of abstinence in the case of opium addicts), Journal of Med. Assoc. of Formosa, Vol. XXXIV, No. 10 (367), Oct. 1935, Pharmac. Inst. of Govt. Med. School, Formosa, No. 88.

Statistical and clinical tests of opium addicts and morphinists in regard to objective abstinence phenomena.

OH. J.: *Experimentelle Untersuchungen ueber das Blutbild von Opium gewoehnten Menschen.* (Experimental investigations of the blood of human beings accustomed to opium), Folia Pharmac. Japonica, Vol. XV, Fasc. IV, 20 March 1933.

Clinical tests of the blood of opium addicts compared to morphinists.

OH. J.: *Ueber Abstinenzerscheiningen und Objektive Befunde bei einer seit fruehester Kindheit an Opium gewoehnten Frau.* (On abstinence phenomena and objective conditions in the case of a woman accustomed to opium from earliest childhood), Journal of Med. Assoc. of Formosa, Vol. XXXIV, No. 10 (367), Oct. 1935, Pharm. Inst. of Govt. Med. School, Formosa, No. 87.

Study of women accustomed to opium from birth—general constitution weaker and the subjective symptoms of abstinence stronger than in those using opium only when older.

PAGADOR, Antonio: *Los Venenos Sociales,* Opio Morfina (209 pages), Discussion of "Opio y opiomanias" to page 111, "Morfina y Morfinomanias" from page 113 to page 198, Barcelona, 1923, 3 pages bibliography.

PARISH, Joseph: *Opium Intoxication,* read before the American Association for the Cure of Inebriates, at Binghamton, N. Y., October 9, 1873 (17 pages), Baltimore, W.K. Boyle & Sons, 1875.

PARK, William Hector: *Opinions of over 100 Physicians on the Use of Opium in China,* Shanghai, American Presbyterian Mission Press, 1899.

A list of the physicians responding is given at the beginning, with their professional qualifications, nationality, years in China, and station or province. They responded to a questionnaire. Practically nothing good was said for the use of opium in China.

PHAM-NGOC-THACH: *La tuberculose des fumeurs d'opium,* Revue de la tuberculose, Series 5 ,Vol. 5, pages 203-212.

This study concludes that the opium smoker is less susceptible to tuberculosis than the non-addict.

RAI, K.: *Ueber den Blutdruck der Opiisten.* (On the blood pressure of opium addicts), Journal of Med. Assoc. of Formosa, Vol. XXXV, No. 4 (373), April, 1936, Pharm. Inst. of Govt. Medical School, Formosa, No. 101.

Clinical study of the above subject, in all stages of use, abstinence and convalescence.

RAI, K. *Ueber die Beeinflussung der geschlechtlichen Funktion durch Opiumgenuss.* (On the effects of opium addiction on the sexual function), Journal of Med. Assoc. of Formosa, Vol. XXXIII, No. 8, Aug. 1934, Pharmacol. Inst. of Govt. Med. School, Formosa, No. 62.

Addiction weakens sexual functioning of man, finally leading to impotence.

REVEIL, Pierre-Oscar: *Recherches sur l'opium. Des opiophages et des fumeurs d'opium,* thèse pour le doctorat en médecine, Paris, Riguoux, 1856, 100 pages.

In spite of the very early date this contains material still of some interest. The author seems to have noted the decline of morphine content in opium from later incisions of the same capsules, in experimental production in France, a fact rediscovered by Annett in India during World War I.

REYNAULT, Dr. Jules: *Les fumeurs d'opium,* Esculape, janvier 1914.

RO. Asho.: *On the Blood Types of Opium-Addicts in Formosa,* Journal of Med. Assoc. of Formosa, Vol. XXXIII, No. 3, March, 1934. Dept. of Hygiene, Govt. Research Instit., Formosa, No. 214.

Comparison of blood types of opium addicts and healthy persons of Formosa.

ROBERTS, Sir William: *The Opium Habit in India,* Appendix to collected contributions on digestion and diet, 2 ed., London, Smith, Elder & Co., 1897, pages 261-318.

A discussion of Indian conditions as seen by the author.

ROWNTREE, Joshua: *The Imperial Drug Trade,* London, Methuen & Co., third edition, 1908.

A serious study about the opium trade including the resulting addiction to opium-smoking. Covers the situation in China, India, British Colonies, Japan.

ROWNTREE, Joshua: *The Opium Habit in the East: A study of the Evidence Given to the Royal Commission on Opium,* 1893-4, London, P.S. King & Son, 1895, 108 pages.

Interesting and valuable study.

RUSSELL, Pasha T. W.: *Drug Addiction in Egypt,* British Journal of Inebriety, XXIX, 1931, pages 60-65.

A graphic article by a noted specialist in the field on the situation in Egypt. Covers law-enforcement problems as well as addiction.

SCOTT, Franklin: *Experiments and Observations on the Means of Counteracting the Deleterious Effects of Opium and on the Method of Cure of the Disease Resulting Therefrom,* Philadelphia, The Author, 1803, 57 pages.

A medical study of the experiments and observation of the physiological effects of the use of opium.

SMITH, William J.: *An Inaugural Dissertation on Opium, Embracing its Chemical Analysis, and Use and Abuse as a Medicine,* New York, 1832, (23 pages).

Of some historical interest by reason of the early date.

STIRLING, W. G.: *Opium Smoking Among the Chinese,* Ipoh, Federated Malay States—Times of Malaya Press, 1913.

STREPPEL, Wilhelm Cornelius: *Ueber Opiummissbrauch,* Greifswald, H. Adler, 1921.

SULTZBERGER, Hartmann Henry: (edited by) *All About Opium,* London, Wertheimer, Lea & Co., 1884 (207 pages).

Contains reports of meetings, letters to papers, articles, and extracts, by various authors, chiefly dealing with the British opium trade with China, and defending it.

Chinese provinces chiefly supplied with Indian Opium: Chilin, Shantung, Shansi, Honan, Kiangsi, Nganhui (Anhwei), Shensi, Kansu, Kiangsi (Kiangsu?)

Provinces with native culture: Yünnan, Szechuen, Kwangsi, Kwantung, Kweichou, Hunan, Hupeh, Chehkiang, Fukien.

TERRY, Charles E.; PELLENS, Mildred: *The Opium Problem,* The Committee on Drug Addictions in collaboration with the Bureau of Social Hygiene, Inc., New York, 1928.

Despite the title, most of this book is concerned with white drugs. It includes hundreds of case studies and has a serious, scientific approach.

THEOPHRASTUS: *De Historia Plantorum IX,* page 12, 300 B.C., Loeb Classical Library.

An ancient scientist's remarks on the poppy and its effects on the human body. Interesting as a novelty rather than for serious study.

TINLING, J.F.B.: *The Poppy Plague and England's Crime*, London, Elliot Stock, 1876, 192 pages.

Criticism of Britain's opium policy of 75 years ago.

TO. S.: *Ueber die Vergiftung der von der neugeborenen Seit an Opium gewoehnten Menschen.* (On the toxic conditions of human beings accustomed to opium from birth), Journal of Med. Assoc. of Formosa, Vol. XXXXIV, No. 8 (365), August, 1935, Pharmac. Inst. Govt. Med. School, Formosa, No. 80.

Study of people accustomed to opium from birth, born of mothers who are addicts. Three-quarters of cases of acute morphine poisoning were children under 5.

TO. S.: *Sur la détermination de la morphine dans l'urine des opiophages et des morphinomanes et l'application pratique de la réaction.* Jap. Journal of Med. Sciences. IV, Vol. VIII, No. 2, 1935, Dept. of Hygiene, Govt. Res. Instit., Formosa, No. 186.

Clinical tests on the determination of morphine in the urine of opium and morphine addicts and research into the reaction of morphine and heroin. Application to determine morphine in order to decide whether people are opium addicts or morphinists.

TO. S.: *Statistical studies on opium addiction in Formosa. Second Report*, Journal of Med. Assoc. of Formosa. Vol. XXXIV, No. 6-7 (363-4), June/July 1935, Dept. of Hygiene, Govt. Res. Inst., No. 272.

General statistical study of opium addicts, physical propensities, occupations, etc.

TO. S.: *Statistical studies on opium addiction in Formosa; about mortality rates, and causes of death among addicts*, Taiwan Iggakki Zasshi, 37, 1938, pages 1417-24.

Article shows that death rate among Formosan addicts is higher than among non-addicts. Technical and statistical.

TO, S.; KO, B.: *On Grasping Power, Contraction Power of Musculi Dorsi, and Ergogram of Opium Addicts*, Jap. J.M. Sc. IV, Pharmacology 12, pages 72-73.

Special study of the grasping and contraction power of the musculi dorsi of male and female drug addicts in Formosa as compared with non-addicts. Addicts have generally worse physical condition and lower body force than normal Formosans.

TO, S.; KO, B.; OH, Y.: *Statistical studies on opium addiction in Formosa; concerning the situation of opium-addicted patients after medical treatment*, Jap. J.M. Sc. IV, Pharmacology 13, pages 52-54.

Statistical studies in outline form of addicts after treatment and those reverting to addiction. Medical care and treatments reduce addicts by 50 per cent.

TRIEU, H.: *Le Traitement de l'opiomanie*, Paris, M. Vigné, 1936, 70 pages.

TUOHY, Ferdinand: *Inside Dope: An Exposure of the Dope Traffic*, Hamish Hamilton, 1934, 251 pages.

This book is written in popular jargon and wanders through the whole field of addiction, but touches upon opium addiction at several points.

UNITED STATES OFFICIAL DOCUMENTS: *Report of Committee appointed by the Philippine Commission to investigate the use of opium and the traffic therein in Japan, Formosa, Shanghai, Hongkong, Saigon, Singapore, Burma, Java and the Philippine Islands.* 59th Congress, 1st Session (1905), 283 pages, Document No. 265.

This report embodies a serious investigation of conditions throughout the Far East as regards the abuse of opium. Committee consisted of Major E. C. Carter, Chief Sanitary Officer, Dr. Jose Albert, Filipino physician of Manila, and the Rt. Rev. Charles H. Brent, Episcopal Bishop of the Philippines. Prepared shortly after 1900.

UNITED STATES OFFICIAL DOCUMENTS: Philippine Commission: *Use of Opium and Traffic Therein*, 1900.

VAN HAEFTEN, F. E.; VAN DER WOERD, L. A.: *Experimental Studies on Chandu Smoking*, Geneeskundig, tijdschrift voor Nederlandisch-Indie 80, 1940, pages 1488-1500.

WILSON, Daniel: An Inaugural Dissertation *"On the Morbid Effects of Opium Upon the Human Body,"* Philadelphia, The Author, 1803, 32 pages.

Nothing but a curiosity now.

WOODHEAD, H. G. W.: *A Visit to Manchukuo*, Shanghai, Mercury Press, 1932.

WOODHEAD, H. G. W.: *Truth About Opium In China*, Shanghai Evening Post and Mercury, 1931.

WONG, Y. C.: *Opium in China*, Philadelphia, American Journal of Pharm., 1919, XCI, pages 776-784.

Short outline of the history of opium in China, its cultivation, description of different kinds of opium. Use of opium for smoking and the steps taken to abolish its use.

WOO, Arthur W.: *Auto-Serum Treatment for Opium Addicts* (Observations on 1,000 cases) China Medical Journal, 1937, Volume 51, page 85.

A scheme for the mass-cure of drug addiction is described herein.

WURTZ, Robert Theodore: *Empoisonnement par l'opium*, In Nouveau traité de médecine et de thérapeutique Brouardel & Gilbert, Paris, 1907, fasc. 11, pages 174-186.

Study on the toxicity of opium and other drugs. Symptoms of poisoning, its diagnosis and treatment. Chronic intoxication and methods of use. Description of opium-eaters and smokers. A more detailed and clinical study of morphinism and its physical effects. Diagnosis and treatment are outlined.